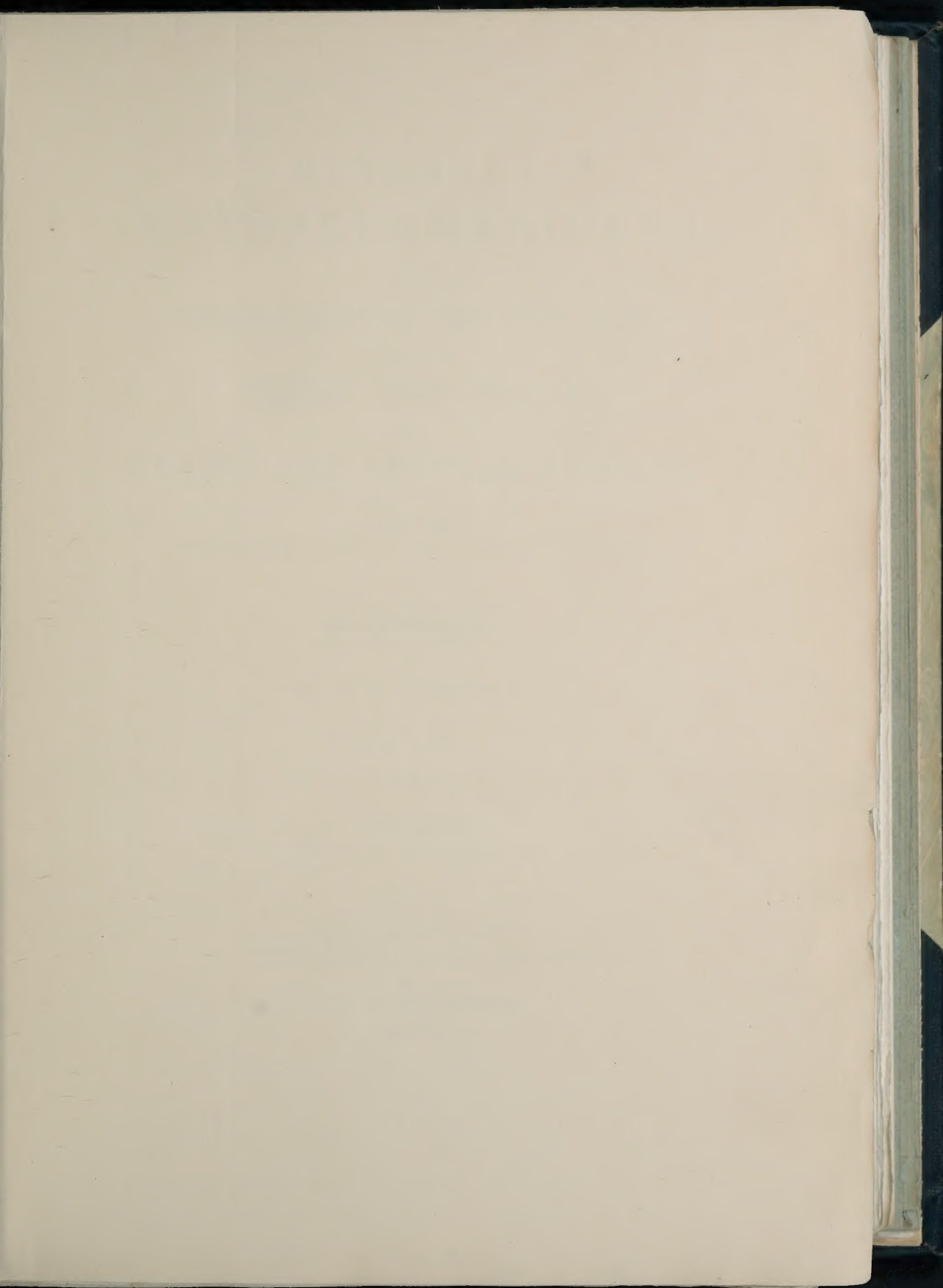




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SANTA FE



BIOLOGIA
CENTRALI-AMERICANA;

OR,
CONTRIBUTIONS TO THE KNOWLEDGE
OF THE
FAUNA AND FLORA
OF
MEXICO AND CENTRAL AMERICA.

EDITED BY
F. DUCANE GODMAN AND OSBERT SALVIN.

ARCHÆOLOGY.

By A. P. MAUDSLAY.

Vols. I.-IV.

(TEXT.)

APPENDIX.

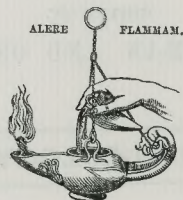
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PREFACE.

My first journey through the Central-American forests in search of the ruins of ancient Indian towns, during the winter of 1882-83, was merely a journey of curiosity, and I had no intention whatever of making a study of American archæology. However, the interest awakened by the sight of the truly wonderful monuments which it was my good fortune to behold induced me to undertake other and better-equipped expeditions, and the kindly encouragement and splendid liberality of the Editors of the 'Biologia Centrali-Americana' led to the results of my journeys being published in the present form.

I was at a loss to know how best to make use of my notes and collections, when Mr. Godman kindly offered to relieve me of all the expense of printing and the reproduction of plates, and to publish my work as an addition to the 'Biologia Centrali-Americana,' if I would supply all necessary photographs, drawings, and plans, and a written memoir. I was naturally delighted to accept this generous offer, and from that day to this every assistance and the most valuable advice has been afforded me by my Editors, and the work has gone on without a hitch. I am glad to have this opportunity of thanking Mr. Godman for his unfailing patience and kindness during the many years over which the publication has extended, and to offer him my condolence on the loss of his co-editor and lifelong friend, Mr. Osbert Salvin, whose kindly nature endeared him to all, and by whose sound judgment and sympathetic advice I have been guided and encouraged for so many years.

Since the publication of Stephens and Catherwood's works in 1840-41, Central America had been almost neglected as a field of archæological research, owing no doubt, in a large measure, to the difficulties of travel and the disturbed state of the

country. Such neglect is, however, never likely to occur again, for although many of the ruins are as deeply buried in the forest as they were in Stephens's time, steamboats and railways have now brought the points of departure for exploring expeditions within at most a fortnight's journey from New York, and the Universities and learned societies of the United States are becoming fully alive to the rich fields of research within easy reach.

I have myself undertaken three expeditions since the Introduction to these volumes was written, and was ably assisted in my work at Palenque and Quirigua by Mr. H. W. Price, and at Chichén Itzá by Mr. H. N. Sweet.

M. Désiré Charnay has given us the results of his journeys in Mexico in 'Les Anciennes Villes du Nouveau Monde,' and the collections made by him are exhibited in Paris. The Peabody Museum of Harvard University has equipped and sent out expedition after expedition, and under its auspices Messrs. John G. Owens, G. B. Gordon, and H. M. Saville have done good work at Copan and elsewhere. Mr. E. H. Thompson has added much to our knowledge of the ruins of Northern Yucatan, and Mr. Teobert Maler to that of the ruins of Southern Yucatan and the banks of the Usumacinta. The results of these expeditions are to be found in the publications of the Peabody Museum, and the fine collection of casts at Harvard and also in the Natural History Museum of New York.

Dr. E. Seler, of Berlin, has again visited Mexico and Central America, and has added to his valuable publications on American ethnology and archæology. Mr. W. H. Holmes has given us a most lucid account of his rapid survey of many ruins during the winter of 1894-95, published by the Field Columbian Museum of Chicago; and Dr. Carl Sapper has rendered great service, both by his geographical observations and maps and by making sketch plans of many of the less known ruins. Mr. Erwin Dieseldorff has most industriously dug up and collected specimens of pottery in the Alta Vera Paz, of which drawings have been published. More recently the Society of Antiquaries has published copies of the very interesting mural paintings from British Honduras, unearthed and most carefully reproduced by Mr. T. Gann, and Miss A. Breton has made accurate copies of the fast-vanishing mural paintings at Chichén Itzá.

I have mentioned only the names of those working in the field within the area dealt with in these volumes; but the list would have to be greatly extended were it to

PREFACE.

include the names of workers in Mexico north of the Isthmus of Tehuantepec and of those who have done so much excellent work in the reproduction of ancient Indian codices and records as well as in their study and elucidation.

In the Introduction I ventured to express a hope that I might be able to make a careful comparison of the monuments and inscriptions of the same locality, one with the other, and then a further comparison between the different groups of ruins: this I have not been able to do, and I did not at the time appreciate the magnitude of the task and the prolonged study necessary for its satisfactory accomplishment. It has, however, to some extent been accomplished in the much-criticised Appendix prepared by my friend Mr. J. T. Goodman. This is not the place to uphold the merits of Mr. Goodman's work, but I think that the continual use made of his calendars by students of the inscriptions will reconcile him to any exception taken to some of his theories.

Before closing these lines I wish to offer my thanks to Gorgonio Lopez and his brothers, my faithful assistants and friends, who accompanied me on all but one of my journeys; and to Mr. Giuntini, who spent two winters with me in the forests, and did most excellent work under very trying conditions, and has since then made all the casts which are stored in the Victoria and Albert Museum, and also the duplicate casts of the more important pieces which the generosity of the Duke de Loubat secured for the Trocadero Museum in Paris and the Natural History Museum of New York, where they are now exhibited.

I am indebted to Mr. E. Lambert, who made some of the first drawings from the casts, when the style of work was unfamiliar and consequently presented many difficulties. Above all, I wish to tender my grateful thanks to Miss Annie Hunter. To students of the inscriptions and sculptures her clever delineation of the carvings will need no further commendation; but I gladly welcome this opportunity of acknowledging the inestimable value of her intelligent and untiring assistance during the eighteen years this work has been in progress.



ESQUIPULAS.

INTRODUCTION.

WHILST so much has been done of late years to throw light on the history of the ancient races of the east, our knowledge of the civilized nations of the western continent has remained almost at a standstill. Comparatively little was accurately recorded of the habits, customs and religion, or of the political and social life of the more civilized American races when the conquering Spaniards first came in contact with them, and next to nothing is known of their past history or the origin of their civilization.

So far is this the case that it is still a matter of dispute whether Montezuma was a
BIOL. CENTR.-AMER., Archæol., December 1888.

great hereditary emperor or merely the elected head of a communal household, and whether the Mayas derived their culture from the Nahuas, or the Nahuas from the Mayas, or whether both inherited it from the Toltecs, or, again, whether the Toltecs themselves are not altogether mythical.

With regard to Mexico and Central America, Cortez, Bernal Dias, and a few others amongst the early conquerors have left excellent accounts of what actually passed before their eyes, and these records are of inestimable value. The writers who followed during the first century of the Spanish occupation are not so satisfactory: those who were Spaniards were inclined to exaggeration in order to magnify the importance of the conquests and the strength of the resistance overcome by their countrymen; some, who were of distinguished Indian descent, were led so to define the status of their ancestors as to bring it into accord with Spanish ideas of sovereignty; whilst nearly all were ecclesiastics, and were constrained to fit all Indian traditions and to trace all native customs to an origin which was in accordance with the accepted Biblical history of the human race.

But notwithstanding the exaggerated statements made by these writers, and the erroneous interpretation which they put on much that they saw and heard, their writings have a very considerable value.

It would indeed have been wonderful if the Spanish conquerors could have broken the bonds with which the teaching of the day and the unquestioned religious belief of the age fettered their minds. When they first landed in America their imaginations were full of the phantasies and imagery of the east; they looked for fabulous cities and fountains of eternal youth; but their ideas of government and social life did not range beyond the feudal relationships of Western Europe, and their minds failed to grasp a state of affairs so different from what they looked for, and so unlike that to which they were accustomed, whilst even the most observant and discriminating were at a great disadvantage in having to explain the social, religious, and political systems of the New World in terminology suited only to the Old.

It is to be hoped that modern criticism will not long leave the information buried in these records in its present unsifted condition, and that a more careful editing of the early Spanish writings, and further research amongst the vast collection of documents relating to the Indies which are preserved at Seville, will do much to determine the accuracy of our knowledge and add considerably to its extent.

It is not, however, only from written records that our knowledge can be increased. Lying scattered over certain portions of the American continent (and especially numerous in the dense tropical forests between the south of Mexico and the northern frontier of Honduras) are remains of buildings and monuments, which were raised by the civilized races of America ages before the arrival of the Spaniards. And it was with the desire to preserve some further record of these remains, and especially to take exact copies of the carved hieroglyphic inscriptions, before the disintegrating effects of a tropical climate and the careless mutilations by man had

rendered them useless for study, that the explorations were undertaken, the results of which are given in this publication.

Stephens and Catherwood were the pioneers in this work, and their very accurate and beautifully illustrated works will always remain of the greatest value to the student of American Archæology; but the improvements made during the last fifty years in the processes of moulding and photography now make it possible to produce copies of Indian carvings even more exact than those traced by the skilful hand of Catherwood.

In preparing this publication I am met at the outset with considerable difficulty in determining in what order and what form the information and collections acquired during my journeys can be rendered most intelligible and useful for study.

The plan of operations adopted as far as possible in America was first to establish the geographical position of a group of ruins, and make a survey of the site, then to take careful measurements of the buildings, and to photograph such as were sufficiently well preserved, and then, where possible, both to mould in paper or plaster and to photograph the sculptured monuments and all the hieroglyphic inscriptions. The method of further investigation which promises to give the best result is the careful comparison of the monuments and the inscriptions of the same locality, one with another, and then the further comparison of the different groups of monuments which I have examined, or such as are described with sufficient accuracy by other travellers. The plan, then, which it is proposed to follow in this publication, is to give a sketch map of the site of a group of ruins showing the position of the buildings and monuments, to be followed by detailed plans of the buildings, and photographs and drawings of the monuments and inscriptions, accompanied by such short notes as may, during the course of publication, give some additional interest to the illustrations; but to defer a fuller examination and comparison of the material presented until a sufficient number of illustrations are before the reader to enable him to judge of the value of such comments as may then be offered for his consideration. The work of making plaster casts from the moulds taken in America is now in progress in England, and a considerable number of these casts are already on exhibition at the South Kensington Museum and the Archæological Museum at Cambridge. Skilful artists are being employed to make drawings of all the inscriptions (and in some instances of other sculptures) from the plaster casts, with the aid, in most cases, of photographs of the original sculpture. These drawings, which I have most carefully supervised, are not intended to be exact copies of the carvings in their present mutilated and weather-worn state, but representations of the inscriptions, restored, as far as with our present knowledge they safely can be, to their original condition. I know how liable such restoration is to serious error, and feel the responsibility involved in undertaking it. But careful comparison of one inscription with another has convinced me that many of the worn

glyphs can be restored with absolute certainty, and in no case will the restoration of a glyph be attempted (except as a marginal note) where there is not a fair indication of its original form. I have, however, the satisfaction of knowing that any student seeking the interpretation of the inscriptions can correct the errors of the drawings by reference to the photographs which will invariably accompany them, or by a visit to the Museums where the casts are exhibited. The publication will be continued in parts, as the work of casting and drawing progresses; it will therefore of necessity be fragmentary, and it may possibly be interrupted for a time, should I undertake further explorations in Central America.



CHURCH AT ESQUIPULAS.

COPAN.

PRINCIPAL NOTICES AND DESCRIPTIONS OF THE RUINS.

Copan has been already described in the following books and letters:—

A letter from the Licenciado Diego Garcia de Palacio to Philip II. of Spain, dated Guatemala, 8th March, 1576.

Published in Spanish with an English Translation by Squier in 'Collection of Rare and Original Documents and Relations concerning the Discovery and Conquest of America, chiefly from the Spanish Archives.' New York, 1850. A copy of this portion of the letter is also to be seen amongst the Muños collection of Spanish MSS. in the British Museum (17,571).

'Historia de Guatemala; Recordacion Florida,' escrita el siglo xvii. MS. By Francisco Antonio de Fuentes y Guzman *.

Letter dated Copan, 19th June, 1834, from Colonel Juan Galindo, to the editor of the 'Literary Gazette' of London, printed in 'Literary Gazette' for 1835, pp. 456-7. A similar letter printed in the 'Transactions of the American Antiquarian Society,' vol. xi. pp. 545-50.

'Incidents of Travel in Central America, Chiapas, and Yucatan,' by John L. Stephens. John Murray, London, 1841.

No record has been left by the Spaniards who first penetrated into this part of the country of the existence of any large town or civilized population where the ruins are now found, and the attempt made by Juarros †, in his History of Guatemala, to connect the site of the ruins with that of an Indian stronghold conquered by Hernando de Chaves in 1530, will not bear scrutiny, although the fact that Chaves made an expedition into this part of the country and subdued the Indians in the neighbourhood is not disputed.

We have to turn, then, for the only trustworthy information given by the Spaniards about these ruins to the letter written by the Licenciado Diego Garcia de Palacio, an officer of the Audiencia of Guatemala, to King Philip II. of Spain. The contents of this letter have been made use of by Herrera and other historians, but they have omitted to take notice of that part dealing with the ruins of Copan. The great importance of this description was justly appreciated by Squier, who, in 1860, published the whole letter in Spanish as well as an English translation. The following is Palacio's account of the ruins:—

"Near here, on the road to the city of San Pedro, in the first town within the

* The first half of this History (which does not contain any notice of Copan) was published with notes by Don Justo Zaragoza, 2 vols., 8vo, Madrid, 1832-3.

† Compendio de la Historia de la Ciudad de Guatemala, por El Señor Don Domingo Juarros. Guatemala, 1808.

province of Honduras, called Copan, are certain ruins and vestiges of a great population and of superb edifices, of such skill and splendour that it appears that they could never have been built by the natives of that province. They are found on the banks of a beautiful river in an extensive and well-chosen plain, which is temperate in climate, fertile, and abounding in fish and game. Amongst the ruins are mounds which appear to have been made by the hand of man *, as well as many other remarkable things.

"Before arriving at them we find the remains of thick walls, and a great eagle in stone, having on its breast a tablet a yard square, and on it certain characters which are not understood. On arriving at the ruins we find another stone in the form of a giant, which the elders amongst the Indians † aver was the guardian of the sanctuary. Entering into it we find a cross of stone, three palms in height, with one of the arms broken off. Further on we come to ruins, and, among them, stones sculptured with much skill; also a great statue, more than four yards in height, which resembles a bishop in his pontifical robes with a well-wrought mitre (on his head) and rings on his fingers.

"Near this is a well-built plaza or square with steps, such as writers tell us are in the Coliseum at Rome. In some places there are eighty steps, in part at least of fine stone, finished and laid with much skill.

"In this square are six great statues, three representing men, covered with mosaic work and with garters round their legs, their weapons covered with ornaments; two of the others are of women with long robes and head-dress in the Roman style. The remaining statue is of a bishop, who appears to hold in his hand a box or small coffer. They seem to have been idols, for in front of each of them is a large stone with a small basin and a channel cut in it, where they executed the victim and blood flowed off. We found also small altars used for burning incense. In the centre of the square is a large basin of stone which appears to have been used for baptism, and in which, also, sacrifices may have been made in common. After passing this square we ascend by a great number of steps to a high place which appears to have been devoted to *mitotes* and other ceremonies; it seems to have been constructed with the greatest care, for through the whole of it there can still be found stone excellently worked. On one side of this structure is a tower or terrace, very high, and overhanging the river which flows at its base.

"Here a large piece of the wall has fallen, exposing the entrance of two caves or passages extending under the structure, very long and narrow, and well built. I was not able to discover for what they served or why they were constructed. There is a grand stairway descending by a great number of steps to the river. Besides these things

* "Hai montes que paracen haber sido fechos a mano" Squier here translates "are trees which appear to have been planted by hand." "Monte" all over Spanish America is synonymous with "bush" as that term is used in Australia; but it here clearly is used in its original sense of hill or mound.

† "Dicen los Indios antiguos."

there are many others which prove that here was formerly the seat of a great power and a great population, civilised and considerably advanced in the arts, as is shown in the various figures and building.

"I endeavoured with all possible care to ascertain from the Indians, through the traditions derived from the ancients*, what people lived here, or what they knew or had heard from their ancestors concerning them. But they had no books relating to their antiquities, nor do I believe that in all this district there is more than one, which I possess. They say that in ancient times there came from Yucatan a great lord who built these edifices, but that at the end of some years he returned to his native country, leaving them entirely deserted.

"And this is what appears most likely, for tradition says the people of Yucatan in time past conquered the provinces of Uxajal†, Lacandon, Vera Paz, Chiquimula, and Copan; and it is certain that the Apay language which is spoken here is current and understood in Yucatan and the aforesaid provinces. It appears also that the design of these edifices is like that of those which the Spaniards first discovered in Yucatan and Tobasco, where there were figures of bishops and armed men and crosses. And as such things are found nowhere except in the aforesaid places, it may well be believed that the builders of all were of the same nation."

This description is such as might have been written by any intelligent visitor within even the last few years. The edifices were evidently in a state of complete ruin, and no mention is made of any roofed buildings or, in fact, of any buildings which could have been used as habitations. It is clear from other parts of this letter that Palacio was a very diligent and careful inquirer into all matters connected with the history and customs of the Indians, yet the very vague story which he was able to gather from the natives in the neighbourhood is no more than they would probably have invented to account for the existence of the ruins, even had all connected tradition died out.

The MS. of Fuentes y Guzman is preserved in the city of Guatemala. I have looked through a copy which is kept in the University Library in that city, but regret to say that arrangements which I made to have certain passages copied were not carried out, and I am not able to quote them textually. However, I have little hesitation in stating that information given by Fuentes is frequently untrustworthy and his writings of little value.

Fuentes's description of Copan is so absurd and so directly contradicted by what can still be seen on the spot that it has been long discredited, and is only worth quoting to show where the errors of later writers have had their origin.

The following is the account of the ruins of Copan given by Juarros in his History

* "Saber, por la memoria derivada de los antiguos, que gente vivio alli, e que saben e oyeron de sus antepasados."

† Uxajal, probably *Tyasal*, the modern Flores, an island in the Lake of Peten.

of Guatemala, and there is no reason to doubt that he is quoting accurately from the MS. of Fuentes :—

“Copan was in former times the wealthy city and court of the Cacique Copan-Calel, who was conquered, after much labour and difficulty, by the Capitan Hernando de Chaves.

“The historian of this country, Don Francisco de Fuentes, asserts that in his time (that is to say, in the year 1700) the Circus Maximus of Copan was still entire and perfect; this was a small circular plaza surrounded by pyramids, six or seven yards high, built of very well-worked stone. At the foot of the pyramids were some life-sized figures of men and women beautifully sculptured, and the colours with which they were enamelled still well preserved; but the most curious thing about these figures is that they are clothed in the Castillian costume.

“In the centre of this plaza, above a flight of steps, is the place of sacrifice.

“The same historian says that at a short distance from the Circus is a doorway also of stone, with columns representing the figures of men, like those in the Circus; these figures are also clothed in Castillian costume, with hose, frilled collar, sword, cap, and short coat.

“Entering by this gateway one admires two fine stone pyramids, broad and high, with a hammock slung between them, and in the hammock two human figures, one of each sex, dressed like Indians. But the most surprising thing is that, although it is of such great size, there is no joint or rivetting to be seen, and, notwithstanding its being all of stone and of such enormous weight, it swings with a slight touch of the hand.

“A short distance from this hammock is to be seen the cave of Tibulca; this appears to be a large temple of great size and capacity, dug out of the foot of a hill, adorned with columns, with bases, capitals, and crowns, all perfectly adjusted by the principles of architecture.

“In the sides of the temple are a great number of windows ornamented with skillfully worked stone. All of which things persuade and convince one that in the times of the ancients there was communication and commerce between the inhabitants of the Old World and the New.”

The Report of Colonel Juan Galindo, who was commissioned by the Government of Guatemala to examine the ruins, appears never to have been published in full, and the short notices sent by him to foreign scientific societies and periodicals do not add much to our knowledge. The most important passage in his letter will be quoted hereafter when the detailed description of the ruined structures is given.

The next description of Copan is from the pen of John L. Stephens, who, in the year 1839, was despatched on a special mission from the President of the United States to the Government of Central America. Finding it impossible to carry out his diplomatic mission, owing to the state of anarchy to which the country had been reduced

by continual revolution and civil war, Stephens devoted most of his time to the exploration of the ruins of ancient Indian monuments and buildings, and on his return to the United States published a most interesting and accurate account of his travels and of the discoveries he had made.

Stephens was accompanied during his travels by Frederick Catherwood, an English artist, whose beautiful pencil-drawings add immensely to the value of the book.

Almost all the sculptured monuments at Copan which were then to be seen above ground are described and figured in Stephens's work; but, like all other visitors to the ruins, he failed to understand the nature of the ruined structures, mistaking ruined houses for fallen city walls, and seeing no trace of stone-roofed buildings which might have served as dwelling-houses or temples.

In Bancroft's 'Native Races of the Pacific States' (vol. iv.) there is a description of Copan principally founded on that of Stephens. This description is accompanied by a full and interesting bibliographical note, but the MSS. and publications mentioned in it add nothing to our knowledge of the Ruins.



STONE HEAD FOUND LYING ON THE SOUTHERN SLOPES.



SQUARE ALTAR (T) IN THE VILLAGE OF COPAN.

PERSONAL NARRATIVE.

My first visit to Copan was made in January 1881. I had landed at Yzabal about a fortnight before, and was on my way to Guatemala city accompanied by a native muleteer in charge of two pack-mules. My interest in American antiquities had already been aroused by what I had seen on the road from Yzabal of the ruins at Quirigua.

During this first visit to Copan, which lasted only three days, I was able, with the

aid of the plan and description given in Stephens's 'Travels in Central America,' to see all the monuments then known to exist there.

My next visit was in January 1885, when I had already gained some experience in investigating Indian ruins. I was accompanied by the three brothers Gorgonio, Carlos, and Jose Domingo Lopes, two of whom had been with me during former expeditions.

Near the frontier of Honduras I was met by two gentlemen, Don Carlos Madrid and Don Jorge Dowson, who had been sent by General Bogran, the President of Honduras, to assist in my investigations. At the end of a few days I bade good bye to these gentlemen, who returned to their homes, and then, leaving Gorgonio Lopes in charge of the work of clearing away the undergrowth and cleaning the sculptured monuments, I myself set out for Yzabal to meet Mr. Guintini, a skilled worker in plaster, who had been my assistant during an expedition to the ruins of Quirigua in the year 1883.

Unfortunately the steamer in which Mr. Guintini sailed from England broke her shaft, and had to go back to Cork for repairs, so that his arrival was considerably delayed. I occupied the time with a visit to Chaal and Cajabon, and to the ruins of "Chacujal," on a branch of the Rio Polochic. On returning to Yzabal I met Mr. Guintini, and, after starting off the pack-mules with the heavy baggage and moulding-materials, we set out ourselves and arrived at Copan on the 26th February, and remained camped there until the beginning of June. The list of baggage was a long one, for, in addition to supplies of food, we needed for our work the following articles:—axes, picks, crowbars, and other tools, surveying and photographic apparatus, photographic dry-plates and chemicals, lime, bales of moulding-paper, and four tons of plaster of Paris. This plaster was shipped from England in tin-lined barrels, which were opened at Yzabal, and the plaster was then packed in waterproof sacks, each holding about 85 lbs. Two of these sacks was as much as a mule could carry.

The only "roads" in this part of the country are rough mule-tracks, in some places almost impassable during the wet season; and although the journey from Yzabal to Copan can be accomplished on a good riding-mule in three days, pack-mules need more than double that time for the journey, even during fine weather.

The village of Copan stands at an elevation of 1700 feet above the sea-level, and during the months of March, April, and May the climate is almost perfect. The heat is, of course, considerable at midday, but the mornings, evenings, and nights are delightful. There is a good supply of water, and as the country is partly cleared of forest, and under cultivation, there is none of the cooped-up feeling which is experienced when working in a small clearing in a tropical forest, as was the case at Quirigua. There are very few mosquitoes, but unfortunately there is a still worse pest in the myriads of ticks which, at the beginning of the dry season, swarm over every leaf and blade of grass.

Soon after we had set to work on my return from Chaal, war broke out between the Republics of Guatemala and Honduras on the one side and San Salvador and Nicaragua

on the other. This war seriously interfered with my work. A large body of troops was camped near Esquipulas, a small town about thirty miles to the south-west, celebrated as a place of pilgrimage to the shrine of the black Christ*. All the mules in the neighbourhood were taken up for war-transport, and there was much difficulty in getting up the relays of stores and material I needed from Yzabal.

Nearly all my labourers were carried off to serve—very unwillingly—as soldiers, and my work had to be carried on with such men as had passed the military age, and a few waifs and strays who had managed to escape the vigilance of the government officers.

Every now and then a report came that troops were marching towards the village, and my neighbours generally prepared to betake themselves to the bush with such few valuables as they possessed, and leave the village in charge of two or three cripples and some ancient ladies. It was only from predatory bands who might take advantage of the disturbed state of affairs that I myself looked for any trouble; but nevertheless it was uncomfortable, as the wildest rumours were flying about, and it was impossible to get any trustworthy information. My friends in the city of Guatemala wrote to me, most strongly urging me to beat a retreat to the coast, and added that it was quite impossible, in the dangerous state of the roads, to send me the silver I needed to continue paying my workmen.

But I determined to hold on, as I had most thorough confidence in the assistants whom I had brought with me, who were all old and tried companions. I did not, however, expect the confidence and support which I received from the villagers, who had looked upon me anything but favourably when first I came amongst them, and who themselves bore a most unenviable reputation, which I am delighted to have an opportunity to refute; for, although very lazy and with a deep-rooted fear of soap and water, I found them to be truthful, good tempered, and remarkably honest. When I was reduced to my last dollar, not only did the men left in Copan and the neighbourhood volunteer to go on working for me, saying that they knew I would pay them when I could receive the money to do so, but they actually scraped together the few dollars which could be found in the village and lent them to me, so that I could pay off some workmen who came from distant villages, and were obliged to return to their homes.

Finally, a battle was fought not far from Esquipulas, in which General Barrios, the President of Guatemala (who had always been a good friend to me during my previous expeditions) was killed, and the war came to an end and some of my labourers returned.

There was, however, another matter which caused me anxiety and interfered seriously with the supply of labourers, which was that during the whole of my stay at Copan, an epidemic of small-pox raged in the neighbourhood. I am thankful to say that there were no cases in Copan itself; but I rode through some villages only a few miles distant

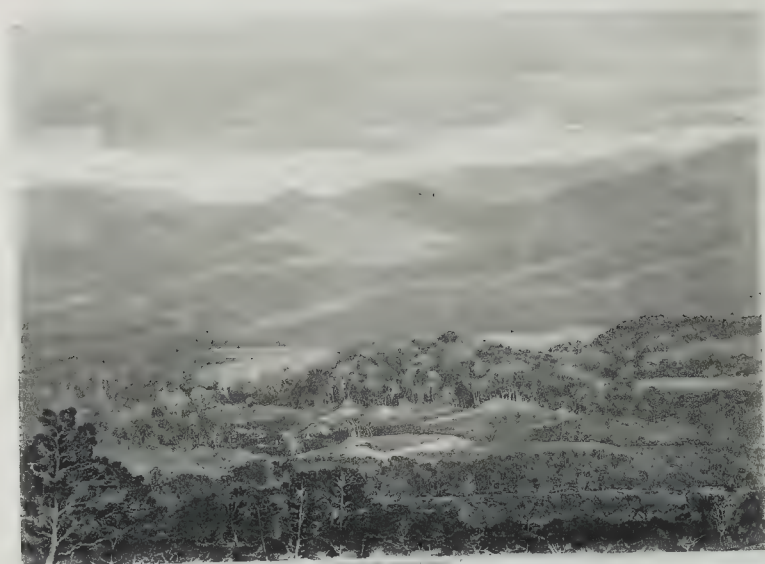
* Views of Esquipulas and of the church containing the shrine of the black Christ are given on pages 1 and 4.

which were altogether deserted, but where the long rows of mounds and the hastily-made crosses by the roadside showed the havoc which the disease had caused before the survivors had fled. The Alcalde of Comotan (the nearest Indian town) told me that more than a hundred deaths were reported to him in a week.

Towards the end of May the heavy thunder-storms and increasing rain warned us to prepare for our return journey. By this time the paper we had brought with us had been turned into large paper-moulds, which needed much care in handling, and the four tons of plaster of Paris into fourteen hundred pieces of "piece-moulding" of various shapes and sizes, with sharp corners and delicate edges, which required the most careful protection against the rough jolting over the mountain-track. I had fortunately taken the precaution of bringing with me from England several hundredweight of tow and a large quantity of wrapping-paper, so that each piece of the plaster-moulds could be well covered with tow and wrapped and tied up in a separate paper parcel. About sixteen of these parcels could be packed into each of the two wooden boxes which a mule carried. The paper-moulds were sown up in waterproof "American cloth" and packed in open crates made of laths of the very light wood of a species of *Hibiscus* which grew in the neighbourhood; and these unwieldy but not heavy packages were carried on the backs of Indians safely to the port of Yzabal, where the moulds were repacked in strong wooden cases.

It seemed to me that all danger of damage or destruction to the moulds might then be considered to be at an end; but such was not the case. The steamer in which I sailed with my treasures from Livingstone broke her shaft whilst crossing the Gulf of Mexico, about ninety miles distant from the north coast of Yucatan, and we drifted about in a helpless condition for some days, until the currents carried us over the edge of the great bank of Yucatan, where we dropped anchor about sixty miles from land in forty-five fathoms of water. Fortunately the weather held fine, and at the end of a week a small steamer hove in sight and came to our assistance, and carried the passengers to New Orleans. On our arrival in port tugs were immediately despatched to succour the disabled vessel; and as soon as she was safely towed into port I transferred all my cases to a steamer leaving for England.

When only a few days out this steamer ran aground on one of the numerous reefs near the coast of Florida, and her cargo had to be taken out of her; but, although my personal baggage was damaged, the moulds fortunately escaped unharmed, and at last arrived safely in England.



VIEW OF THE PRINCIPAL GROUP OF RUINED STRUCTURES FROM THE NORTH-WEST.

GENERAL DESCRIPTION OF SITE.

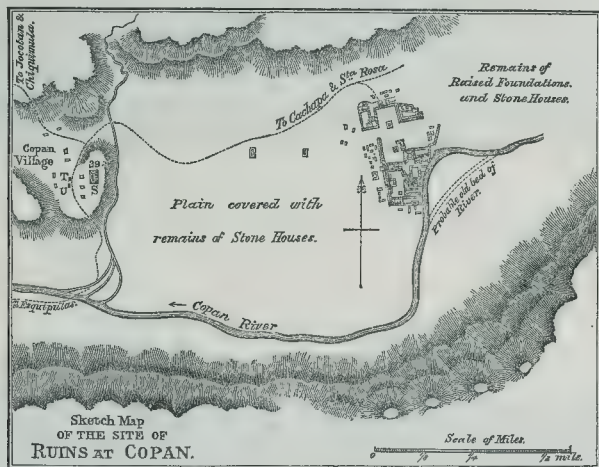
The name "Copan" properly applies to the district or province in which the ruins are found, but it is more frequently used to designate the small modern village which has been built amidst the remains of the ancient Indian structures.

This village is situated just within the western boundary of the Republic of Honduras (lat. $14^{\circ} 50' 30''$ N.), on the right bank of the Copan river, a stream which rises to the north-east of the ruins, and, after flowing for about thirty miles in a westerly direction, turns to the north and joins the Rio Motagua in the neighbourhood of Zacapa. The Motagua then continues its course in an east-north-easterly direction to the Gulf of Honduras, passing close to the group of ruins at Quirigua.

The distance between Copan and Quirigua cannot be much more than twenty-five miles. There is, however, at the present time no road over the rugged and thickly-wooded hills lying between them, and the shortest practicable track takes a considerable bend westward and strikes the Motagua a little below Gualan.

The valley formed by the Copan river is about a mile and a half in width where the principal ruins are found. The stream enters this valley from the north-east, flowing between hills which open out gradually, and after running about a mile in a south-westerly direction, near to the southern line of hills, it turns for a short distance to the west and touches the principal group of ruins, then bends sharply to the south, and, after flowing for about half a mile in that direction, turns again to the west and flows on along the south side of the plain.

The tops of the hills on each side of the valley are thinly covered with pine-trees, but the lower slopes are clothed with an almost impenetrable thicket of low trees and shrubs.



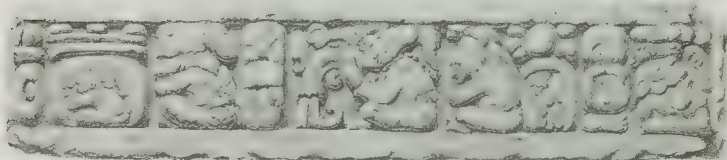
The modern village stands on part of the site of the ancient pueblo, about three-quarters of a mile to the west of the principal group of ruined edifices, and is merely a collection of a dozen miserable shanties inhabited by half-castes. The clearings continually made by these people for their tobacco and maize plantations have kept much of the plain free from large timber-trees, and for a distance of about three miles along the valley (wherever the more recent clearings enable one to examine the ground) raised

foundations and mounds of stones can be seen, evidence of the considerable population which must have at one time inhabited the plain, and similar remains can be found in many of the smaller valleys in the neighbourhood.

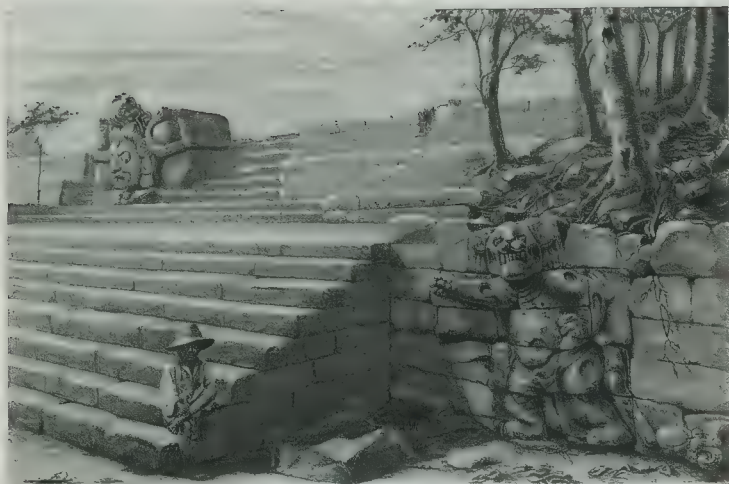
The small village of Cachapa, which is situated about seven miles up the river-valley to the north-east, also stands on the site of old buildings, and several pieces of stone with remains of hieroglyphic writing on them are still to be seen lying amongst the rubbish on the plaza. Down stream, about two and a half miles west of the village of Copan, at the top of a high hill commanding a magnificent view of the valley, there are also to be seen remains of some stone foundations, and, lying amongst them, a fallen and broken monolith (originally standing about 12 feet high above ground), carved all over with a hieroglyphic inscription, now much worn and very indistinct.

The sketch-map shows a high pyramidal foundation [No. 29], close to the houses of the modern village of Copan, at the top of which was found a flat slab of stone (S), about two feet square, with a hieroglyphic inscription on its sides. I was not able to ascertain if any stone building had ever stood on this foundation. There is a broken and defaced monolith lying in the scrub about 50 yards to the west of the village, and two "altars" (T & U) stand on the village green, and some other fragments of broken and defaced carved monuments were found from time to time in the neighbouring thickets.

The plain between the stream that runs on the east side of the village and the principal ruined edifices is covered with the remains of groups of houses generally arranged round a courtyard. Only a few of the higher foundations which may have supported temples are marked on the map. There is one broken monolith lying in the scrub to the north of the track to Cachapa.



PART OF THE FACE OF A STEP FROM THE HIEROGLYPHIC STAIRWAY. (No. 27, Plate I.)



THE JAGUA STAIRWAY (No. 24, PLATE I.), PARTLY RESTORED.

DETAILED DESCRIPTION OF PRINCIPAL STRUCTURES.

At the commencement of the survey the whole area comprised in the plan (Plate I.) was covered with a dense growth of trees and shrubs, which had to be cleared away and burnt; but the level plazas, having been used as planting-ground, were free from large timber-trees. The careless burning of felled timber and shrubs by the villagers when forming their plantations has proved most disastrous to the sculpture in the plazas; almost all has been seriously damaged by fire and some entirely destroyed.

On the slopes and raised terraces, which could not be planted with maize, there is still a thick growth of forest-trees, which, except when absolutely necessary, I did not remove.

BIOL. CENTR.-AMER., Archæol., *December* 1888.

d

...

The lines on the plan are more regular than those presented to the eye at the ruins, as they have been laid down without showing the masses of fallen stones and débris. This, however, was not done by guesswork, but by moving the displaced stones at intervals and thus ascertaining the original limits of the slopes and stairways.

The mass of terraces and pyramidal foundations is built up of a rubble of rough blocks of stone and mud, bound together, in the course of erection, with internal upright walls of faced stone and horizontal layers of cement. The outer surfaces were always covered with a casing of well-worked stone, in many parts elaborately sculptured, and the whole was probably faced with a coating of plaster ornamentally coloured, of which some traces can still be found.



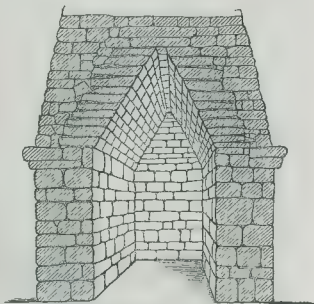
TEMPLE AT TIKAL, PARTLY RESTORED.

The sections (Plate II.) give some idea of the mass of masonry which has been raised from the plain. On the pyramidal foundations the worked stone casing is usually

arranged in great steps, a single step measuring in some instances as much as 8 feet in breadth and height. The heavy rains and the growth of the roots of trees and shrubs have reduced these structures to rough-looking mounds of tumbled blocks of stone and rubbish, square or oblong at the base, more or less rounded at the corners, and rising almost to a point or flat ridge at the top. Some of the buildings which stood on these foundations were two storeys high, and all, probably, had lofty superstructures (such as can still be seen at Tikal, and at the ruins of Menché on the banks of the Rio Usumacinta). The destruction of these superstructures accounts for the present shape of the mounds—the falling masonry has knocked off the salient angles of the large steps, and filled up the receding angles with broken fragments, and the whole mass has been subsequently bound together by the roots of trees. So complete is the ruin of the temples and houses that in no single instance could any portion of the walls of these buildings be seen without digging through the fallen masonry and rubbish to some considerable depth.

The system of roofing here used (as in almost all ancient American buildings) was what may be called the horizontal arch. The idea that stone-roofed houses had been raised on these foundations received confirmation when faced stones cut diagonally at one end were found amongst the débris at the bottom of the slopes. It seemed certain that they must have been used in the construction of roofs. I also noticed that many of the mounds had slight depressions on the top ridge, either one in the centre or two or more at regular intervals. It occurred to me that these depressions might mark the position of doorways, and this was found to be the case, and proved to be a most useful guide when excavations were commenced.


Round three sides of the Great Plaza (Plate IV.)* the steps rising to the terraces are in a fairly good state of preservation. The large square mound on the first terrace to the west [No. 1]† has a distinct flight of steps, shown in the plan. The top is flat and almost square, and there is no evidence that any stone building had ever been raised on it. Some previous visitor had dug into the foundation, but apparently discovered nothing of interest. A broken monolith (E) lies in front of this mound. The slopes and mound which rise still higher to the west of this are too much destroyed to be of any interest.



SECTION THROUGH SINGLE-CHAMBERED HOUSE.



ROOF-STONE.

* The numeral in the sign  on the map and plans refers to the photographs, the direction of the extended arms giving the angle comprised in the view.

† Numbers in square brackets refer to the red numerals on the large plan, Plate I.

On the terrace to the north of the Great Plaza is another square mound [No. 2], which, as in the case of the last described, shows no trace of any stone building having been raised on it. Immediately to the west of this mound are the remains of a long single-chambered house. The group of buildings on the terrace to the east of the plaza show unmistakable signs of having been houses. The high foundation [No. 3] at the east end of this group would probably repay excavation; the stairway on the south side of it can be clearly made out, and there are some roofing-stones lying at the foot of the slopes.

The mound [No. 4] standing by itself, in the centre of the Plaza, is one of considerable interest; the outer casing of masonry is much broken up and has almost entirely disappeared, but the steps by which it was ascended are still traceable on the east side. The top rises almost to a point, and there is no sign of any building ever having stood on it. An excavation was made into the centre of this mound from the top, opening towards the south side. The upper part was composed of rough unworked blocks of stone and mud, with occasional layers of cement and sand; the lower two thirds of stone and mud only. The excavation was then continued below the level of the plain through about twelve feet of hard-rammed earth, free from stones, below which the natural soil appeared to have been undisturbed. In the centre of the mound, about six feet from the top, an earthen pot (Plate XXI., *a*) was found containing a bead-shaped piece of greenstone, pierced, diameter two and three quarter inches (*b*), the jade whorl of a spindle (*c*), the remains of a necklace of nine jade beads (*d*), four pearls (*e*), some small rough figures and other ornaments cut out of pearl oyster-shell (*f*), and other irregular pieces of roughly carved pearl-shell (*g*). At the bottom of the pot was some red powder (which proved to be finely ground cinnabar), and several ounces of quicksilver. Eighteen inches above this pot some traces of bone were found mixed with sand. At the level of the ground, more traces of bones were found mixed with red cinnabar powder and sand, and one large pierced bead-shaped stone, diameter three inches (*h*). About eight to nine feet below the level of the plain, a skeleton of a jaguar was found lying under a layer of charcoal. I was able to preserve some of the teeth and some part of the jaw as well as a few small pieces of the other bones by dropping them into glue. The teeth and part of the skeleton had been painted red. About 100 yards almost directly to the south of this mound I shortly afterwards opened another very much smaller and much more ruined mound [No. 5], and, under a thick layer of cement at the level of the ground, found a few small fragments of human bones, two small stone axes, and portions of another jaguar's skeleton, and some dog's teeth, showing that such an interment of animals was not a matter of chance.

On the west side of the southern portion of the Plaza is a long mound [No. 6] which proved to be the remains of two long single-chambered houses, one having four and the other three doorways opening towards the Plaza. Excavations laid bare portions of the walls of the chambers and the commencement of the horizontal arch of the roof.

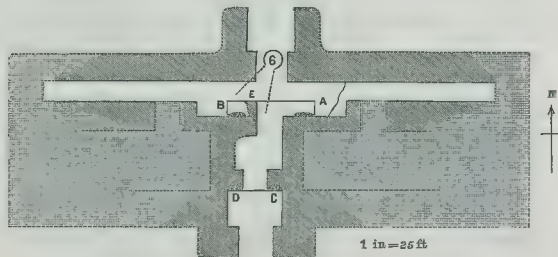
The width of these chambers did not exceed seven feet. The square mound [No. 7] to the south of these houses does not appear to have supported any stone building, but there are traces of a low wall having enclosed the level space at the top. Near this wall were found some stones, shaped like skulls, and a stone serpent's head. Close to this mound are the remains of two small houses, and another square mound [No. 8] the casing of which is almost entirely destroyed.

On the plain to the west are numerous foundations of small houses, but only those lying nearest to the principal structures are shown on the plan.

On the east side of the Plaza is a detached square mound [No. 9] which formed the foundation of a house or temple, and beyond it is another mound [No. 10] of the same character, from which a low terrace runs out towards the north and then turns at right angles to the west. The main group of terraces and buildings to the south is covered with a forest-growth well shown in Plate V.

To the south of the Great Plaza there rises a broad stairway, which as it ascends the slope divides into three separate flights of steps, each narrowing towards the top (Plate VI., *a*). The space between the steps appeared to have been highly ornamented, and the carving (Plate IX., *b*) had probably fallen from that position. The steps on the right and left lead to level terraces, and the centre flight must have led to the temple [No. 11] which stood at a still greater elevation. This building presented the appearance of a formless heap of stones, out of which a huge ceiba tree was growing (Plate VI., *b*). Some portions of the chambers, which are shown in the accompanying Plan, were excavated. The porches on each side probably extended some distance

PLAN OF No. 11.



beyond the line of the walls of the building. The roof and superstructure had entirely disappeared, but the inner wall was in places perfect up to the spring of the vault.

A step about eighteen inches high and eighteen feet long (A to B, see Plan), formed of two blocks of stone, projected in front of the inner doorway; the face of this step is ornamented with a number of figures seated cross-legged and covered with elaborate breastplates and other ornaments in sharp and well-preserved carving (Plate VII., *a*, and

Plate VIII.). A carved ornament (Plate VII., *a*) made up of several stones let into the wall, rises from this step on each side of the doorway and reaches to the top of the wall. This carving is, I believe, meant to represent a huge serpent's head without a lower jaw; but the design is executed in a conventional form, and its meaning can only be made out by comparison with many other sculptures of a similar kind.

The effect of this ornament must have been considerably marred by the continuation of the wall of the passage to the face of the step at E.

Above this curious ornament, and extending to a distance of seven feet on each side of the doorway (and probably continued over the doorway itself, although all trace of it has disappeared), ran an elaborate cornice, ornamented with seated human figures and hieroglyphs carved in medium relief (Plate VII., *b* and *c*). The height of the wall from the floor to the cornice is about nine feet. Ornaments similar to the serpent's head already mentioned occur where a step descends into the southern porch at C to D; but in this case the face of the step is ornamented with a row of teeth, and it forms an under jaw common to the serpent's head on each side. Unfortunately no copy of this design could be made, as the carved stones comprising it were so much broken and displaced by the pressure from above and the growth of the roots of trees that they fell to pieces as the excavation proceeded.

The interior walls of both the outer porches were ornamented with hieroglyphic and other carvings; but here also the stones were so much worn and displaced by the roots of trees that nothing could be preserved or copied.

The walls of the house are built of blocks of stone averaging in measurement 1 foot \times 1 foot \times 6 inches.

The wall-surfaces retained traces of a coating of plaster which had probably been ornamentally coloured, and the floor was covered with several layers of cement.

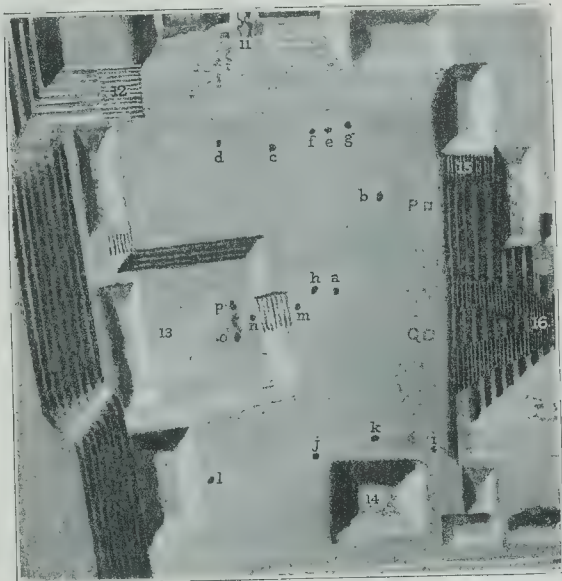
On the south side of the temple the slope from the porch down to the level of an inner court, which may be called the Western Court, is so much broken up by roots of trees, and so thickly covered with fallen stones, that no trace of a stairway can be made out, although in all probability one formerly existed.

There is a distinct flight of steps [No. 12] from the terrace on the west of the temple leading down to the Western Court, the floor of which is about 30 feet above the level of the Great Plaza to the north.

An irregular square terrace [No. 13] projects into this court on the west side, and the remains of three stone houses overlook the downward slope to the west, and form the boundary of the court in that direction.

Standing in this court are a tall carved monolith (P) and a square stone altar (Q) which will be hereafter figured and described, and scattered around are numerous pieces of broken sculptured stones, which no doubt formed part of the exterior ornaments of the temples or of the slopes of the high foundations on which they stood.

The position of these fragments is shown in the portion of the general plan (Plate I.) repeated below.



a, is a flat slab, now much broken, measuring 4 feet 7 inches \times 3 feet 8 inches \times 1 foot; there are grooves cut in the edges, as if it had been fitted into a wall. On the surface is a carving, in medium relief, of a human figure sitting with legs crossed and clutching in its left hand an ornament, in which two small animals' heads can be indistinctly made out, and holding it to its breast, whilst in the right hand is held an object similar to that shown in the hands of most of the figures in Plate VIII.

The figure is seated above two intertwined plumed serpents.

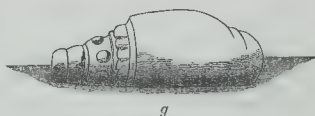


b, is the carving represented on Plate IX., *a*; the slab is made up of four pieces. *c* and *d*, are somewhat similar slabs much broken and worn; the figures in each have offerings in their hands similar to that shown on Plate IX., *a*.

e, is a large alligator's head measuring roughly 2 feet each way: the long tenon with which this carving had been fixed into the masonry is still attached to it.

f, is a human foot 2 feet long and 10 inches broad.

g, is a carved stone 4 feet in length, to which I am unable to attach any meaning.



h, is a broken column 4 feet high 1 foot 10 inches in diameter; it is broken in half, and has some indistinct carving on it.

i and *j*, are two flat stone slabs, each about the same size, 7 feet 6 inches \times 4 feet 6 inches \times 1 foot; both are broken, one has indistinct remains of hieroglyphic carving on the narrow sides and ends. Excavations have been made beneath each of these slabs at some former time.

k, is an oblong stone rather larger at the top than at the bottom, measuring 4 feet in length, 2 feet in height, and 2 feet 5 inches in breadth.

l, is a circular stone 2 feet 4 inches in diameter, 1 foot 6 inches in height, pierced through the centre by a hole 7 inches in diameter; it shows no trace of carving.

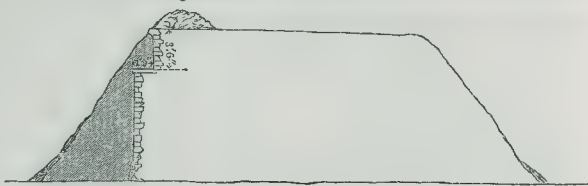
m and *n*, are similar stones, but they are not pierced.

o and *p*, are two stones, each 3 feet 5 inches long, rudely carved in the shape of alligators' heads; they project from the corners of a heap of stones, the remains of some structure, and they now probably lie in their original position.

In addition to these carved stones described above there are several other fragments of sculpture, including one headless bust, one stone incense-burner in the shape of a grotesque head, and several stones carved into the shape of skulls.

At the south end of the Western Court is a detached mound [No. 14] almost flat at the top. On digging into the north side of it a wall with a projecting coping was met with, with a shelf 1 foot 9 inches wide above it, surmounted by another wall 3 feet 6 inches high, reaching to the small square terrace on the top of the mound. This terrace is reached by a stairway on the east side, and it does not appear to have supported any building; but along its southern edge there lies a heap of stones, not large enough to be the

remains of a house, but possibly marking the site of some ornamental wall or row of seats. Where the walls first mentioned are broken away it can be seen that they are built of only one layer of faced stone backed up with rubble.

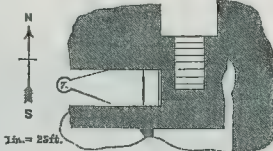


SECTION THROUGH No. 14 SHOWING LINE OF EXCAVATION (SHADED PORTION).

On the east side of the Western Court is a stairway [No. 15] with twenty steps leading to a raised terrace, on which stand the remains of several small houses; the steps are built of large blocks of stone averaging in measurement 6 feet \times 1 foot 3 inches \times 1 foot 5 inches. To the south of this stairway rises the lofty pyramidal foundation of a small temple [No. 16].

The ascent to this temple from the Western Court is by a double stairway joining near the top. The space between the two flights of steps is built up with sculptured stones, the chief ornament being rows of what appear to be death's-heads*. The step-like casing of masonry on this side is almost entirely hidden by the masses of stone and rubbish fallen from above. The upper part of this hill had the appearance of a rounded heap of broken blocks of stone bound together by the roots of trees, and there seemed at first sight to be but little hope of finding traces of a temple or any other building. However, by digging and clearing with care, a small chamber was laid bare on the west side (see Plan) with portions of the walls entire to the height of 6 feet, and on the north side a stairway which must have led to an upper chamber, now altogether destroyed. In clearing the lower chamber (Plate X., *a*) a cross-legged headless figure was found which had been thrown down from the raised bench at the east end, also a stone incense-burner which probably stood in front of it, and the remains of two pieces of rough pottery (Plate XXII., *a*, *b*), which were probably used for burning offerings of incense. Two of the ornaments which I have called serpents'-heads were built into the wall above the raised bench, and a number of small human and grotesque heads formed the ornaments of a cornice round the wall about 7 feet above the cement floor. A view of this foundation from the north-east is given on Plate X., *b*.

PLAN OF No. 16.



All traces of the front wall and doorway have been lost.

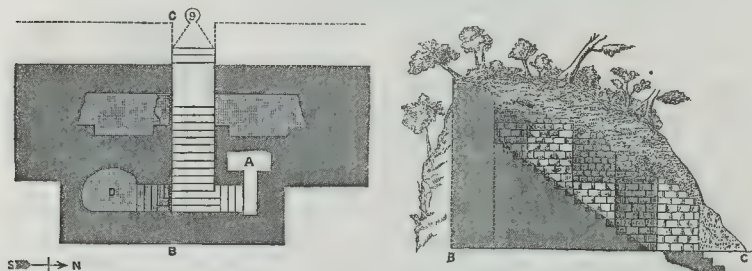
Descending the steps again into the Western Court, and turning to the left, there is

* Stephens notes that these death's-heads are more like the skulls of monkeys than of men.

a narrow opening (→) between the south side of the foundation of the building last described and a row of much ruined houses. To the south of this line of houses two slopes, with a broad terrace between, descend to the level of the plain; beyond this again are numerous remains of smaller buildings, hidden in the thick scrub, which do not need especial notice.

Towards the east end of the space between the row of ruined houses and the pyramidal foundation a second narrow opening (→) gives access to a passage leading to an inner court, which may be called the Eastern Court. On the east side of this passage is a terrace [No. 17], which is reached by a flight of steps in the centre of the slope, and was found to be strewn with broken pieces of sculptured stone. At the south end of the terrace is a raised foundation [No. 18] which once supported a stone-roofed structure. At the east side a few steps lead up to the broken masonry at the top of the river-wall. This line of tumbled stones [No. 19] I examined with great care, and was successful in making out that it was the remains of a row of houses which had extended nearly the whole length of the terrace, the greater part of which had fallen away into the river below. At the north end of this row of houses there stands, facing the Eastern Court, another raised foundation [No. 20] which supported the most curious building the excavations brought to light—no doubt the same building which Palacio describes as a tower. Such a mass of stone had fallen down into the court below that the stone slope and steps leading up to the building were completely hidden. On the side towards the river traces of a wall were found almost overhanging the cliff, which here measures 107 feet in height from the level of the river. It is necessary to turn to the detail Plan and Section to form an idea of this curious building.

PLAN AND SECTION OF NO. 20.



The central doorway is approached from the Eastern Court by a flight of steps; on each side of the doorway a platform or terrace 9 feet wide runs in front of the building; 7 or 8 feet inside the doorway another flight of steps commences and runs through to the back wall of the building, rising about 14 feet. At the distance of 4 feet 9 inches from the back wall other steps turn to the north, and lead up to a narrow landing which gives

access to what seems to have been an upper chamber (A); only a small portion of the surface of the wall and the cement of the floor of this chamber can now be traced. The stairways were covered by parallel laid stone vaults—the spring of the vault is seen in the Section and Plate XI., *a*. The most curious feature of this building is the existence of chambers which have been purposely blocked up before the ruin commenced. These are shaded in the Plan and Section. I cleared out the rough blocks of stone and earth which filled up the lower chamber on the south side of the steps and found the walls and cement floor almost perfect. The front wall was pierced 3 feet above the floor by two narrow slits 6 inches wide, which appeared to extend to the top of the wall, in which were found some fragments of rough pottery. It did not appear as if this chamber had ever been roofed in. I did not remove the stones at the opening towards the stairway, as these had been built up into a faced wall, and still supported some of the roof-stones of the ruined vault over the steps. In the same way the steps leading to the upper chamber (D) had been blocked up and the faced wall used as a support for the vaulting. These more recently built walls and the spring of the vaults are lightly shaded in the section. The only suggestion I can offer in explanation of this state of things is that the builders were not satisfied with the stability of the parallel-laid vaulting over such a large space, and had sacrificed the chambers in order to strengthen the roof over the stairway.

Projecting from the wall on each side of the steps, in the position marked \times in the plan, were two grotesquely carved heads, which probably supported a rope from which a curtain was suspended. A photograph of the best preserved of these heads is given on Plate XI., *b*.

A large mass of broken sculptured stones lying near to or buried in the rubbish surrounding this building shows how elaborate its exterior ornamentation must have been. Amongst these remains are portions of a great human figure, which was probably seated cross-legged over the doorway; the head of this figure is shown in Plate XI., *c*.

Facing the north end of this building is another raised foundation [No. 21], which must also have supported a stone-roofed structure. The flight of steps leading up from the south side to the doorway in the centre can still be seen. Unfortunately, I had not sufficient time to excavate and examine this building.

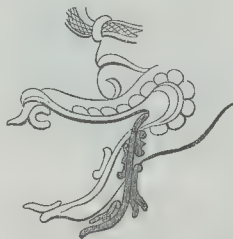
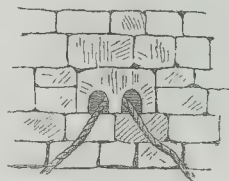
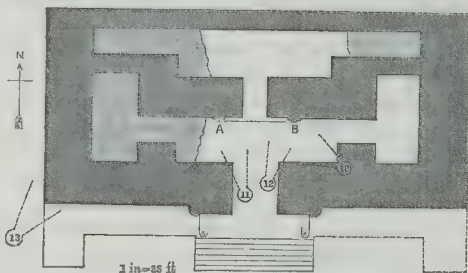
To the west of this foundation, on the north side of the Eastern Court, is another building [No. 22], of which a Plan is given on the next page. A very well-laid flight of steps, formed of large blocks of stone, leads to a platform in front of the centre doorway. This platform runs along the front of the building, and, at each end of the temple, is carried out at right angles as far as the line of the commencement of the steps. Two large grotesque faces and some handsome carved wing-stones extend across this platform to the head of the steps on either side of the doorway. The doorway itself is 9 feet wide and was probably covered with a vaulted roof. In front of the

doorway leading to the inner chamber is a step (A-B) 2 feet high and 15 feet long, carved on its face with hieroglyphs and skulls (Plate XVI.). At each end of this step

is a human figure seated on a huge skull (Plates XII., XIII., XIV., and XV.), supporting in its hand the head of a dragon, whose body is turned upwards and is lost amongst the scroll-work and figures of a cornice which runs over the doorway. About 4 feet above the floor in each of the two positions marked X a stone in the masonry of the wall is pierced by a hole

through which a rope could be passed, and holes may also be noticed above the hieroglyphs on the step, which were probably needed for the support of curtains. How the roof of the passage between one chamber and the other was supported is a mystery. It was covered by a number of blocks of stone, and not by a single stone slab; and yet these blocks are square at their edges, and could not have formed part of a true nor of a parallel laid arch. Possibly wooden jambs and architraves supported these blocks of stone; but if so, all trace of them has disappeared. Plate XII. is a sketch of this doorway, most carefully restored, from photographs and measurements taken during the progress of the excavation (Plate XIII., *a*), as well as after the excavation was finished. There

PLAN OF No. 22.



are in this design good examples of two marked characteristics of American sculpture, namely, the inability of the artist to leave plain surfaces alone, and the love of introducing grotesque faces, or scroll-work derived from them, into the ornamentation of

details. The examples in this design are, turning the backs of the seated figures into huge grotesque faces and ornamenting the tongue of the dragon to the west of the doorway with scrolls derived from the eye, nostrils, and teeth, which are peculiarly characteristic of the frequently-occurring dragon or serpent. This last may at first sight appear to be a fanciful suggestion, but it will be clearly appreciated when hereafter the serpent symbol is more fully examined and described.

The floor and walls of the outer chamber, as well as the surface of the steps and terrace outside the house, bear traces of a coating of several layers of plaster, each layer differently coloured, showing that the plaster had been frequently renewed, and this plaster coating appears also to have extended over the carved surface.

The inner chamber is without ornament. Two stone incense-burners shaped into grotesque heads and some patches of charcoal were found above the cement floor. The back wall of the house was only just traceable. The outer surface of the front wall facing the Eastern Court had almost disappeared; but that it must once have been elaborately ornamented is proved by the number of headless busts and other fragments of sculptured stone lying near it in all directions.

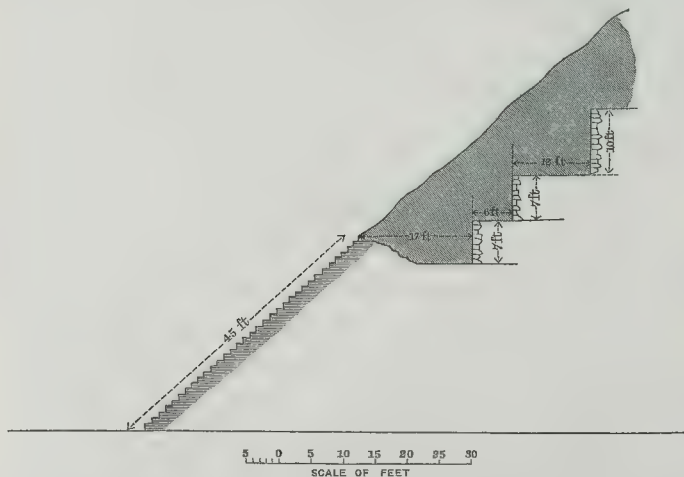
On the outside wall of the building at the south-west corner are the remains of a huge grotesque face made up of several stones (Plate XVII., *c*), much the same in design as the faces which form the principal decoration of some of the buildings in Yucatan. However, the trunk-like nose, which has there so greatly exercised the speculative powers of travellers, if it existed here, cannot now be traced. I opened a passage (→) about 4 feet wide between the west end of this house and another much ruined building, and on this west wall I was able to see some of the ornament, if not exactly in position at least giving evidence whence it had fallen.

Three female figures, standing out in full relief from the waist upwards (Plate XVII., *a* and *b*), with the left arm held across the body and the right hand extended in front, palm outwards, as if about to clap hands when in the act of singing, had been ranged along the upper part of this wall; and broken pieces of similar figures, found in other places, lead me to suppose that this decoration was continued all round the temple.

Almost in the centre of the Eastern Court I turned over a large flat slab of stone which bore traces of sculpture on the upper surface, and dug beneath it to the depth of 12 feet without finding anything worth notice. Many other fragments of sculptured stone are lying in this court, some of which are shown on Plate XIX. On the west side of the court are two flights of steps; those at the south-west corner [No. 23] are quite plain, but the centre stairway [No. 24] is ornamented on each side with large figures of rampant jaguars (Plate XVIII., *b* and *c*) carved out of several blocks of stone, which are built into the slope; and at the top of the stairway is a huge human head issuing from the jaws of an animal (Plate XVIII., *a*). These carvings are marked red in Plate I.

On the level terrace above this stairway is an oblong space [No. 25] marked out by a border of stones, but there is no indication of any building having stood on it. Turning

to the north along this terrace, and leaving the ruins of some small houses on the right, there remains now to be described the high foundation [No. 26] which projects furthest in this direction. A few steps, shown on the plan, lead from the terrace to the top of the foundation. Here I commenced to dig, in hope of finding at least portions of the walls of a building, but met with no success. That a building must once have stood here is almost certain, as several roof-stones were found lying on the slopes. This foundation was ascended from the south-eastern corner of the Great Plaza by a broad stairway [No. 27], and although many of the stones forming the steps are now displaced, and the carving much worn, yet enough is still left to show the excellence both of the design and workmanship. Each step was carved along its face with a line of hieroglyphs*, and the stonework at the edge of the stairway was covered with elaborate and curious ornament. This stairway could be traced up the slope for a distance of 45 feet. I again commenced to dig just above the spot where the top step appeared to have rested, and, after digging in at that level for 17 feet, through closely packed large rough blocks of stone and earth, came to a perpendicular wall. It was necessary to dig down some distance to reach the bottom of this wall, which was found to rest on a



cement floor which ran outwards towards the steps. The wall is 7 feet high and without any coping or cornice, but it is covered at the top with a layer of cement 6 inches thick, which runs back for 6 feet, and forms a floor for another wall 7 feet high; this wall, again, has a similar cement platform at the top, which apparently runs in for 12 feet to meet another wall 10 feet high; above this nothing at all could be made

* See illustrations on pages 16 and 32.

out. I broke through one of the walls and removed a few of the faced stones, and found nothing but closely-packed rubble behind it. My impression is that these walls were built up merely to give strength to the foundation and guard against landslips, and not to enclose any central chamber.

It is probably this method of building up walls of faced stone inside the foundations which has led to the belief that what has been called the great river-wall was the original wall of this group of buildings, and was possibly intended for defence. The destructive force of the river, which has washed away so much of the foundations on the east side, has been somewhat checked on meeting these faced walls, and at the present time the exposed surface of the cliff (Plate XX. and Plate III., *b*), if I may so call it, shows several patches of faced stone wall; one of them, nearly halfway up the cliff from the level of the river, is about 60 to 70 feet in length and over 10 feet in height. Careful examination shows that the edges of these patches pass in some places under portions of the rubble of stone and mud of which all these foundations and raised terraces are built up.

Palacio in his description mentions the 'two caves or passages' the openings of which can be seen on the face of the river-wall, and which have given to the ruins the name of 'Las Ventanas,' or 'the Windows.' The position of one of these passages is marked on the plan with a dotted red line [28-28]. The floor of the passage is level, and the interior is faced with stone, and is just large enough for a man to crawl through. The top of the passage is a little below the level of the court; it was closed on the land side, and I think not intended again to be opened. A deep pit was dug here* by Colonel Galindo†, shown in the plan, which now gives access to the passage.

A few feet from the end of this passage, but at a greater depth below the level of the court, is the subterranean vault outlined in red in the plan, which was broken into by Colonel Galindo. The vault and passage do not seem to have had any connection with one another. The following is Galindo's description of his discovery:—

"Through a gallery scarcely 4 feet high and $2\frac{1}{2}$ feet broad‡ one can crawl from this square through a more elevated part of the temple overhanging the river, and have from the face of the precipice an interesting view. Among many excavations, I made one at the point where this gallery comes out into the square. I first opened into the entrance of the gallery itself, and digging lower down I broke into a sepulchral vault whose floor is 12 feet below the level of the square. It is more than 6 feet high, and 10 feet long, and $5\frac{1}{2}$ feet broad, and lies due north and south, according to the compass.

* Stephens was wrong in saying this pit is faced with stone.

† Letter (dated Copan, 19th June, 1834) from Colonel Juan Galindo to the editor of the 'Literary Gazette' of London, printed in 'Literary Gazette' for 1835, pp. 456, 457. A similar letter printed in the 'Transactions of American Antiq. Society,' vol. vi. pp. 545-550.

‡ Stephens says 1 foot 11 inches at the bottom and 1 foot at the top, and in this form:—

I unfortunately overlooked the measurement, but think Stephens nearer the mark, as there is only just room to crawl through, and it is impossible to turn round in it.



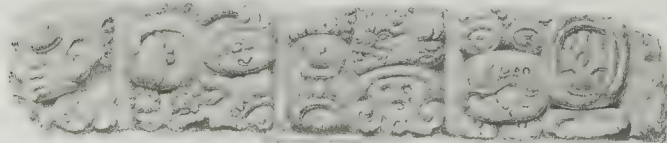
It has two niches on each side, and both these and the floor of the vault were full of red earthenware dishes and pots. I found more than fifty, many of them full of human bones packed in lime; also several sharp-edged and pointed knives of *chaya* (a brittle stone called *itzili** by the Mexicans), and a small head, apparently resembling death, its eyes being nearly closed and its lower features distorted. The back of the head is symmetrically perforated by holes; the whole is of most exquisite workmanship, and cut out or cast from a fine greenstone, as are also two heads I found in the vault, with quantities of oyster- and periwinkle-shells brought from the sea-shore in fulfilment of some superstition. There were also stalactites taken from some caves. All the bottom of the vault was strewn with fragments of bones, and underneath these a coat of lime on a solid floor."

There is another similar passage lower down the cliff and further to the north. We made a ladder and succeeded in entering this passage and crawling to the further end, which we found closed with a stone wall. It is about the same length as the first passage described.

There are two other passages of the same kind near the top of the cliff which I was not able to get at, and they looked too small to crawl into. At some former time an excavation had been made to reach them from above, but the stones had fallen in again, and it did not seem as if any chamber was discovered.

In two of the detached mounds, one on the south and one on the north side of the principal structures, I found small vaults which had probably been used for burial purposes, but was not fortunate enough to come upon any which had not previously been opened. At the foot of one of the stone monoliths (H) in the Great Plaza we dug up a number of stone beads and other objects (Plate XXII., *d*), which were lying only a few inches underground; and a small stone ornament with a human face carved on it (*e*), something like the one found by Colonel Galindo, and several fragments of similar ornaments (*c* and *f*). Single stone beads and flakes and chips of obsidian were from time to time picked up during the excavations.

* *Itzili*=obsidian.



PART OF THE FACE OF A STEP FROM THE HIEROGLYPHIC STAIRWAY. (No. 27, PLATE I.)



STONE MASK FROM MEXICO, NOW IN THE BRITISH MUSEUM.

DESCRIPTION OF STELÆ AND ALTARS.

The monolithic monuments at Copan are cut from a somewhat decomposed trachyte rock; for convenience of description they may be divided into Stelæ and Altars.

On the front of each Stela, and in some cases on both front and back, is a representation of an elaborately decorated human figure. On the back (when it is not occupied by a figure), and in some instances on both back and sides, is a hieroglyphic inscription. The design is sometimes completed by the addition of scroll-work derived from the form of the feathered serpent to which is added a number of small human and grotesque figures.

The ornamentation throughout the sculptures is no doubt to a great extent symbolical, and in the decoration of the Stelæ more attention appears to have been given to the display of such ornamentation than to securing correct proportion in the represen-

BIOL. CENTR.-AMER., *Archæol.*, November 1890.

f

tation of the principal figure; but that the errors in proportion did not arise from the want of knowledge is clearly shown by the far superior treatment of some of the smaller figures on the same monuments.

Almost the whole of the ornamental carving decorating the Stelæ at Copan is derived from the following subjects:—The feathered serpent, grotesque human and animal figures and masks, feathers and feather-work, fish, bands and plaits made of some pliable material such as leather or bark-cloth, and loops and ties made from a softer material. Geometrical patterns, except such as are formed by the folds and plaits of a material with straight parallel edges, are not to be found (unless circles and dots can be so considered). Foliations and other vegetable forms are (with possibly one exception) entirely absent from the designs.

The dress and ornaments of the human figures represented on the Stelæ, although affording infinite variety in detail, are not only similar in general design on all the monuments at Copan, but on all monuments of the same class throughout Central America.

Until the inscriptions are deciphered there is little to help us in determining whether the figures on the Stelæ are intended to be portraits of chieftains or priests in ceremonial costume, or whether they are fanciful representations of heroes or deities. The strong individuality of many of the figures gives force to the former view; but, on the other hand, there are two of the figures which cannot be included in the category of monumental portraits, as their faces are covered by grotesque masks. The great exaggeration of the personal adornments would be more likely to occur in imaginative figures than in portraits; but a possible explanation of these exaggerations may be learned from some of the sculptures themselves. The carving on a wooden lintel taken from a temple at Tikal (part of which is figured on Plate XXIII.) represents a central human figure standing under the arched body of a great feathered serpent, on a sort of stepped platform which rests on a framework of poles. This suggests the probability that images made from some lighter material than stone may have been kept in the temples, and used on the occasion of religious processions. And it may be that the exaggerated adornments of the figures on the Stelæ were copied from the elaborate ornaments with which in all countries and in all ages it has been customary to adorn such processional figures.

There is not at Copan any certain evidence of the use of textile fabrics, but it is probable that the waist-cloths and turban-like head-dresses of some of the figures were made from woven material.

Considerable difficulty is met with in attempting to trace the development of the designs used in the ornamentation: firstly, because, with the exception of feathers and the skins of jaguars, we are not certain of the kind of material from which the ornaments and dress were originally made, and can form no idea of how far the design may have been influenced by the nature of the material worked in; and, secondly, because the original designs may have been considerably modified when transferred to stone by workmen who had probably no better tools than chips and flakes of obsidian.

Of all the subjects from which decorative design is derived, the feathered serpent is by far the most important, and before commencing a detailed description of the monuments it is thought advisable to give a few examples (Plates XXIII. and XXIV.) of the many varieties of ornament derived from the serpent's head and the scroll-work attached to it. There are, so far as I have observed, no really natural representations of a serpent to be found in the Central-American sculptures. Serpent-worship had probably long antedated the development of Central-American art into the condition in which any examples of it remain to us, and the serpents of the sculptures have already passed through a stage of exaggeration and conventionalism. Small heads of snakes drawn naturally may, however, be seen throughout the period of the greatest exaggeration attached as ornaments to the ends of strings or narrow bands, such as the thongs of a sandal, or the bands of the breastplates in Plate VIII. ; but in this particular case the rattles of the tail are drawn as a conventional ornament at the sides of the breastplate.



STONE MASK FROM MEXICO, NOW IN THE BRITISH MUSEUM.

STELA A. (Plates XXV. to XXX., see also Plate IV., *a* and *b*.)

[Compare Stephens's 'Central America,' vol. i. p. 158.]

Height 11 feet 6 inches. Average breadth 3 feet *.

This monument (A, Plate I.) stands in the Great Plaza on the north side of the detached mound (No. 4, Plate I.) and faces the east. As is usually the case, the base of the monument has been surrounded by four large blocks of stone, now somewhat broken and displaced. A portion of the sculpture on the lower part of the monument has been damaged by fire, and the surface of the stone has flaked off, but the rest of the carving, although considerably weatherworn, is in a fair state of preservation.

The want of proper proportion in the representation of the human body is conspicuous in the principal figure carved on the front of this Stela. The body is far too short for the size of the head and limbs. The face is beardless; the mouth slightly open, showing the teeth. The nose is broken, but was probably prominent and aquiline. The hair is pushed off the forehead, and is hanging down in straight lines on either side of the face. The forehead is receding, and there can be no doubt that it was the custom of the people to compress the bones of the skull in infancy. The lobe only of the ear is shown; unfortunately the ornament which passed through the centre of it is broken off, but it was in all probability either a round disc or was similar in design to that shown in profile in the second part of Glyph 21 on Plate XXX. The absence of the shell of the ear in all designs of this class is at first somewhat perplexing, but a reference to the Mexican mask figured in the text (pp. 33 and 35) shows how the shell of the ear, as less susceptible to ornamentation, may have dropped by degrees out of the design, and how the enlarged lobe with its central ornaments and pendants may have become the conventional method of expressing the whole feature. The hands are held up over the breastplate, and the feet are turned outwards almost in a straight line heel to heel. This conventional attitude is preserved throughout all the monuments of this class at Copan.

The following detailed description of the ornamentation of this Stela is given in terms which would be naturally used in describing dress and personal ornaments themselves and not stone representations of them :—

The head-dress is composed of folds or plaited strips of some stiff material, which has already been mentioned as of frequent occurrence, and which can be easily recognized. At the four corners of the head-dress, apparently attached to the ends of the plaited strips, are serpents' heads without lower jaws.

A short close-fitting cape covers the shoulders and chest. This cape is made of square or oblong flattened plates, with a row of rounded plates or beads along the

* The base of each Stela is buried to an unknown depth in the ground; the height given is that of the sculptured surface above ground.

upper edge and a fringe of feathers or some other material along the lower edge. A small portion only of this cape is visible; it is, however, more clearly shown on some of the other monuments. Over the chest lies what I propose to call the breastplate, probably supported by a string of beads which passed round the back of the neck.

The oblong panel of the breastplate is ornamented with a plait, and at each end of the panel is attached an elongated serpent's head, from the open mouth of which issues the head and shoulders of a grotesque human figure. (Compare *b* and *c*, Plate XXIV.) This figure has an oval mark on its forehead, which is surmounted by a tall cap or head-dress. (This oval mark is to be found on the foreheads of almost all the grotesque heads and masks.) A necklace of beads hangs round the neck of the figure, and part of another string of beads is visible, which probably hung down the back. The left hand and part of the bracelet on the wrist can be seen above the lower jaw of the serpent.

On the wrists of the principal figure are bracelets in the form of a grotesque head without a lower jaw, surmounted by three knotted bands.

Round the waist is a girdle consisting of a broad band divided into panels, each panel decorated with a different design. The designs in these panels are doubtless symbolical; they occur in certain positions throughout the sculptured work, and also in the few Maya MSS. which have been preserved, and promise to be an interesting subject for special study.

Hanging from the bottom of the girdle is a heavy fringe of tassels, each tassel formed from a roll of some pliable material with a thong passed through the upper end. In the middle of the girdle, and at the sides over each hip, is a human head. Above each of these heads lies a looped tie, and heavier folds or tassels fall behind the large ears, which have ear-pendants attached to them. Under the chin is a stiff plait (apparently made of the same material as the plaited head-dress of the principal figure), and from the under surface and ends of this plait appear the loose ends and loops of a softer material; beneath these, again, are three heavy folded tassels, each tassel with an oval mark on it. The frequent use of human and grotesque heads and masks on the girdles and garters &c. may account for the great number of stone and earthenware heads to be seen in every museum of American antiquities. A head said to have come from Copan, and now in the British Museum, is figured on pages 44 and 47. It is cut from jadeite, and has holes pierced at the sides for attachment, and was quite possibly used for the ornament of a girdle. There is an inscription, now much worn, cut on the back of it, which is figured on Plate XXXII.

Attached to the girdle, and hanging over it in the same manner as the faces last described, and lying between them, are two bands which reach almost to the knees: each is ornamented with a grotesque head without a lower jaw, hanging forehead downwards, of somewhat the same type as the grotesque heads on the bracelets, and decorated in the same manner with three knotted bands, with the addition in this case of loose ends hanging downwards. Two circles and a bell-shaped mark, probably

representing beads, lie over the bottom of the hanging band, which has a hatched mark on the extreme end.

From the centre of the girdle hangs what it will be convenient to call an apron. The middle of this apron is, in this instance, ornamented with circles, bars, and dots; it is more usually decorated with a grotesque face or mask. The ornament of the sides of the apron, which is shaded in the Plate, is derived from the plumed serpent's head, as can be seen in the series of drawings on Plate XXIV., *f-j*. The lower part of the apron is ornamented with circles and dots, and terminates in a winged scroll or loop.

Broad bands or garters of beads and tassels are fastened round the legs below the knees, and have a central ornament lying just below the knee-cap in the shape of a grotesque head with a fringe of tassels in place of a lower jaw.

It will be as well to quote here part of a description of the dress of the Indians in the North of Yucatan, written at the orders of the Cabildo of Valladolid in the year 1579* by a committee of the earliest Spanish settlers in that part of the country:—

"The Indians of the province of Chiquinchal &c. are clad in 'xicoles' of cotton and feathers, woven like a two-sleeved jacket of many colours. They wear between their legs a 'mastil,' which is a long piece of woven stuff; this is tied over the stomach and, taking a turn below, clothes them decently. Two long ends with many feathers on them hang down before and behind. . . . Many of the men go naked except their 'mastiles.'"

What I have called the girdle and apron is undoubtedly the ornamented loin-cloth or "mastil" of the Indians of Yucatan; but it will be convenient to retain the terms girdle and apron in describing the decoration.

The ornament of the anklets and sandals is similar to that of the bracelets, but the three knotted bands are prolonged into thongs which pass between the toes and fasten into the soles of the sandals.

Above the plaited head-dress of the principal figure, and perhaps attached to it, is a grotesque face or mask with a winged scroll rising from the top of it. On each side of the plaited head-dress is a grotesque-headed human figure in a crouching attitude, with its feet resting on one of the serpent's heads attached to the ends of the plait. The head of this figure is surmounted by a grotesque mask. A cord round the neck supports a breastplate, and on the wrists and ankles are bracelets and anklets, and the end of a loin-cloth can be seen passing over the thigh and hanging down. This figure is holding against its breast, with both hands, the body of a serpent, whose open-mouthed head occupies the upper corners of the design. Something to which no name or meaning can yet be attached is issuing from the serpent's open jaws. The tail of the serpent hangs down and ends in a winged scroll.

Behind these figures is a graceful arrangement of feathers, which were probably attached to the back of the head-dress.

From behind the elbows of the principal figure appears part of an ornament, con-

* 'Relacion de la Villa de Valladolid de Yucatan.' Imprenta de Fortanet, Madrid, 1884.



sisting of triple ties or bows and crossed bands forming a diamond-shaped pattern, and in the middle what may be called a tasselled shield. This succession of ornaments ends in a serpent's head, with the shoulders and head of a grotesque figure surmounted by an equally uncouth mask issuing from its open mouth. The whole of this ornamental band probably hung suspended from the shoulders of the principal figure.





Plates XXVII. to XXIX. are views of the sides and back of the monument, and Plate XXX. is the drawing, made from a plaster cast, of the hieroglyphic inscription on the back and sides of the monument. The inscription commences on the north side; is then, I think, continued on the back or west side, and ends on the south side. This order has been followed in numbering the glyphs, but until the study of the hieroglyphic inscriptions is further advanced, the sequence cannot be insisted on.

In front of Stela A, at the distance of a few feet, the remains of a monolithic altar can be traced.

It is not intended at present to enter into any critical examination of the glyphs; but there are some points of interest to which brief notice may be given.

With regard to the order in which the hieroglyphics should be read, Professor Cyrus Thomas* has shown, from an examination of the Palenque Tablets, that when a single column only of glyphs is met with, it should be read from the top to bottom, and that when there is an even number of columns, the glyphs are to be read in double columns from top to bottom, and from left to right. I myself came to the same conclusion from an entirely independent examination of inscriptions from Quirigua and Copan, and this order is adopted in numbering the glyphs on the following Plates.

Professor Thomas, in writing about the Maya MSS., also points out:—"It is now generally conceded by all who have studied the hieroglyphics that the Maya method of designating numbers was by the use of lines and dots; thus, one dot signifying 1, two dots 2, and so on up to 4, that five was represented by a single short straight line, ten by two lines, and so on. According to this system, a straight line and a dot, thus , would signify 6; two straight lines and two dots, thus , would stand for 12."

There is no reason to suppose that any different system of notation is employed on the sculptured monuments; it was not, however, usual to leave blank spaces when carving the numerals 1, 2, 6, 7, 11, 12, 16, 17 in stone, but to fill up the space thus:  - 1;  - 2;  - 6;  - 7 &c.

It will be found that many inscriptions are preceded by what I propose to call

* A Study of the Manuscript Troano by Cyrus Thomas. Contributions to N. American Ethnology, vol. v. Washington Govt. Printing Office, 1882.

a "heading," similar in general character to the heading of the inscription on Plate XXX.

This heading is very frequently followed by what I propose to call the "Initial Series" of glyphs*. There are two principal forms in which this initial series occurs. One is a series of six glyphs, each glyph composed of two characters—usually two heads, without any numerals attached to them; the other is a series of six characters occupying six or a less number of glyphs, each character having a numeral attached to it. Each character in the single series is usually identical with one of the characters from the glyph in the corresponding position in the double or two-character series.

In some cases there is a mixture of the two series.

The initial series is to be found in inscriptions throughout Central America. At Copan, however, the single series only is well represented. It is thought that it will add interest to this part of the publication to give a table of the series (Plate XXXI.) as it occurs in nine of the inscriptions at Copan.

Where in any of these inscriptions the initial series has been compressed into less than six glyphs, the characters have been separated on Plate XXXI., and are placed one below the other; the correct sequence, of course, being retained.

The characters most easily distinguished are those occupying the positions of Numbers 4 and 6 of the series. Number 4 is a grotesque animal's head in profile, with a very clearly marked scroll at the corner of the mouth, and Number 6 a cartouche containing usually, but not always, a human head in profile.

In some cases where an unexpected character occurs in the single series, as in Numbers 2 & 5, Stela M, Plate XXXI., these characters are also found to occur as the second characters of the glyph in the same position in the double series: the examples quoted above being found in the inscription on the well-known Tablet of the Cross at Palenque.

Until the whole body of inscriptions is carefully collated, it is impossible to say how far the slighter variations which are to be found in the series are due to artistic latitude allowed to the sculptor or to intentional difference in the matter recorded.

The number attached to the first glyph of the initial series will be found to be almost invariably the number nine.

The highest number expressed by the system of notation already described is nineteen, represented by three bars and four dots (Stela A 3, Plate XXXI.), and nothing is known for certain of the notation for the expression of any higher number. I am, however, strongly inclined to believe that the sign given in fig. *a* (p. 41), which occurs in combination in Glyphs Numbers 3, 15, & 33 of Plate XXX., and again in an exceptional form in Number 50, stands for the numeral 20.

* The word "glyph" is employed to denote each separate square or group of characters, and may contain one or more characters, as each character may be made up of one or more signs.

This explanation first suggested itself to me on noticing the position this sign occupies in the initial series, occurring as it does in seven of the initial series on Plate XXXI., where it would be natural to expect a numeral.

I had also noticed that the character shown in fig. *b*, frequently occurred with a double set of numerals attached to it (as in fig. *c*), and a more careful examination of all the inscriptions within my knowledge showed that when this character is not accompanied by two sets of numerals, the sign which I suppose to represent 20 is given in place of one set of numerals, as in figs. *d* and *e*, or more rarely both sets of numerals are replaced by the supposed sign for 20, as in fig. *f*.

It may be added that there are only two isolated instances of a double set of numerals being attached to any other character than that shown in fig. *b*.

We thus find that the sign which I suppose to represent the number twenty occurs both in the initial series and in other parts of many inscriptions in positions where it is probable that a numeral would be found.

There is another character which sometimes occurs in what otherwise might be considered as a single-charactered initial series; and it is possible that this character also, which is made up of three signs, and can be seen in Plate XXXI. Stela I, 5, also represents a number; but further consideration of its import must be postponed until the inscriptions from Quirigua are figured, where it is of more frequent occurrence.

A study of Plate XXXI. shows other exceptions to what has been given roughly as the rule with regard to the initial series; but it must be borne in mind that the object of these remarks is merely to point out the most promising lines of investigation, and that any statements now made must be considered as purely tentative.

There is, however, another point to be noticed, in regard to the sign which I suppose to represent the number twenty. It is known that there are twenty days both in the Maya and Mexican months, and on Plate XXXII. are figured reduced copies of what Professor Cyrus Thomas has shown to be two calendars. The Maya calendar occurs in the MS. known as the *Codex Cortesianus*, and the Mexican calendar is taken from plate 44 of the *Fejervary Codex*. Below these are figured two schemes, with numbers in place of the day characters, drawn up by Professor Thomas when working out the calendar systems, and without any reference whatever to the matter now under consideration; but it will be seen that the arrangement of the calendar is in exactly the same shape as the sign which I suppose to be the numeral twenty.

BIOLOGICAL CENTRAL-AMERICAN, *Archæol.*, November 1890.



If I am right in my suggestion the likeness in the arrangement of the calendar to the numeral twenty would suggest a numeration in scores, which is in accordance with what is stated by the early Spanish writers *.

In a northerly direction (between A and B, Plate I.) lies another Stela, broken off just above the feet of the principal figure which faces the east. The feet and sandals are well carved and in fair preservation, but the remainder of the monument has suffered much from fire and was not worth copying.

Near to this fallen monument is an altar figured in Stephens's 'Central America' (vol. i. p. 157), and which can be seen in the distance in Plate XXIX. A twisted rope ornament encircles it, and curved grooves are cut on the top and sides.

STELA B. (Plates XXXIII. to XXXIX., see also *a* and *b*, Plate IV.)

[Compare Stephens's 'Central America,' vol. i. p. 156.]

Approximate height 11 feet 9 inches. Average breadth 3 feet 6 inches.

This monument (B, Plate I.) stands almost in the centre of the northern half of the Great Plaza, and faces the east. The lower portion of the carving has been destroyed by fire, and the whole of the front of the monument which is carved in high relief has suffered considerable damage.

The principal figure on the front of this Stela has much the appearance of a Chinaman. The face is bearded and has what appears to be a moustache joined into a curious ornament which hangs over the centre of the breastplate. The ears are furnished with pendants as well as with the usual ornaments through the centre of the lobe. The panel of the breastplate is ornamented with two of the symbols usually found on the girdle. On the apron is an exaggerated face without a lower jaw, which takes the place of the circles and bars found on Stela A. (Compare Plate XXIV., *f*.)

The head-dress bears a strong resemblance to a turban; lying over it are some feathers and scroll-work, of which the attachments cannot properly be made out.

Above the turban is a complicated ornament made up of two small human figures seated on the front of a grotesque face without a lower jaw. This face is shown amongst a series of such faces on Plate XXIV., *m*. The great curved teeth are, however, common to this head, and to the heads which bear some resemblance to those of elephants occupying the top corners of the Stela.

* 'El modo de contar de los Indios es de cinco en cinco, y de quatro cincos hazen veinte.' Landa, Relacion.

The elephant-like appearance of these heads has been the subject of much discussion, but I fail to see any reason why the form may not have been taken from the head of the tapir, an animal still commonly found in the neighbourhood. The exaggeration in the length of the nose or trunk is too common a feature in almost all the numerous grotesque heads found on these sculptures to call for any special comment in this case.

On the upper part of the trunk orifices having the appearance of nostrils are clearly defined, and there are some cross-hatched marks on the lower part of the trunk. The eyes are almost surrounded by what appear to be scales. On the North side (Plates XXXVI. A and XXXVII. A) the scroll-work usually attached to the serpent's head is seen rising from the top of the ear, which is also furnished with a pendent ornament.

Above both these trunked heads has probably been seated a small human figure, but that on the South side only (Plates XXXVI. B and XXXVII. B) now remains. Each of these figures carried in his hand a peculiar baton or sceptre with a grotesque head on the top of it. This baton is seen on the side A, almost covering the eye of the trunked head.

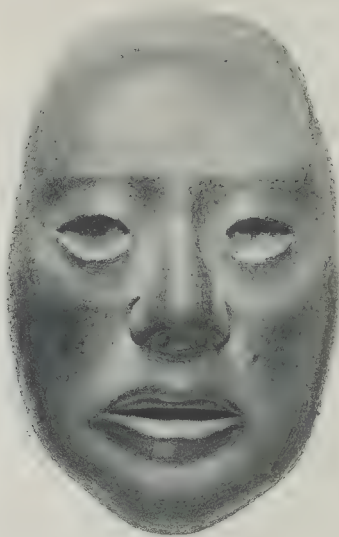
The grotesque head on the baton in A has a winged scroll arising from its forehead and another from the top of its head. In B it is difficult to determine whether the scroll which appears to rise from the head really belongs to it or whether it is attached to the ear of the large trunked head.

Down each side of the Stela, below the large trunked head, are three other heads (tinted in alternate colours on Plate XXXVII.) with trunks less developed and with eyes of another shape, and with large teeth curved in the opposite direction to those of the upper heads. In the lowest of these heads only is the lower jaw shown. All three heads on each side have the conventional ear with the serpent scroll rising from the top of it, and also an ear-pendant with a small face on it.

From under the eyelid of the uppermost of these three heads hangs a band, to which is attached a grotesque head with a serpent scroll, hanging forehead downwards. From the back of this head a band passes over the shoulders of a small human figure, which is seated immediately above the prolonged teeth of the serpent's head attached to the breastplate of the principal figure on the front of the Stela. Only one of these small human figures can now be seen; but it is probable that a similar figure has been broken off the north side of the monument, and it has been restored in the drawing in order to keep the balance of the design.

Another small figure was seated on the trunk of each of the lowest of the three large heads, and can be seen in both front and side views.

The back of this Stela is decorated with a huge grotesque face which is shown in Plate XXIV., *n*. The figure seated on the forehead of this face, and the glyphs from the eyes and mouth, are figured below the photograph on Plate XXXVIII.



STONE HEAD IN THE BRITISH MUSEUM, SAID TO HAVE COME FROM COPAN.

STELA C. (Plates XXXIX. to XLI.)

[Compare Stephens's 'Central America,' vol. i. p. 155; and Catherwood's Views, Plate 4.]

Approximate height 11 feet 10 inches. Average breadth 3 feet 6 inches.

This is a broken monolith (C, Plate I.) which faced east and west, and must have been one of the most elaborately carved of the whole series.

The part still standing has suffered from fire, and much of the surface has flaked off. The principal figure on the east side is shown in Plate XL. The head is beardless.

With the help of pulleys and improvised shear-legs we were with difficulty able to raise the fallen portion so as to enable me to mould the glyphs on the underside, and to obtain the photograph of the figure on the west side which is given in Plate XXXIX.

The features have suffered much mutilation, but it is interesting to note the heavy beard which covers the whole of the lower part of the face, a peculiarity which, so far as I know, is not to be found on any other sculptured figure in Central America.

The ornamentation of the figure appears to have been of the usual type.

Plate XLI. gives a drawing of the inscription on the sides of this Stela, taken from the plaster cast now in the South Kensington Museum.

Close to this broken Stela, and partly shown in Plate XL, is what may have been an altar, in shape somewhat resembling a turtle. The back of the animal is without ornament, and the claws, which are not in shape those of a turtle, are detached from it, but the monument has been too much disturbed for the design to be made out with any certainty. It is just possible that the alligator-like head which is figured by Stephens (plates facing p. 156, vol. i.) as lying at the foot of Stela B may have belonged to this nondescript animal.

STELA D. (Plates XLII. to XLVIII., see also *δ*, Plate IV.)

[Compare Stephens's 'Central America,' vol. i. p. 153; and Catherwood's Views, Plate 5.]

Approximate height 12 feet. Average breadth 3 feet 6 inches.

This monument (D, Plate I.) stands at the north end of the Great Plaza, immediately in front of the flat-topped mound (No. 2, Plate I.) and faces the south. The design is very elaborate and is carved in high relief. Unfortunately there is but little of the ornament which has escaped serious damage and mutilation.

The face of the principal figure is covered with a mask which has a large oval mark on the forehead. The eyes and mouth of the face show through the openings in the mask and the beard appears from beneath it.

The serpent's head scroll rises from the top of the lobe of the ear, but this scroll is more probably intended to be connected with the mask than with the human head.

The centre face is absent from the girdle, and the apron which hangs over the top of the girdle is ornamented with a grotesque head hanging forehead downwards, with three ties over the forehead, and below this head with feathers and rosettes.

Immediately above the head of the principal figure is a grotesque mask with loops and ties over its forehead. Above this the sculpture, which is deeply cut, is much broken away, but traces of two serpents' heads are visible; and protruding from their mouths are grotesque-headed creatures with winged scrolls issuing from their foreheads.

The hands and arms of a human figure can be made out grasping the bodies of these serpents, but all the remainder of the figure is broken away.

In Plate XLV. the scrolls usually attached to the serpent's head are inserted in dotted lines, merely as suggesting the ornament which probably occupied the position.

Turning now to the side view A, Plate XLVI., the body of one of the serpents whose head is shown on the front of the Stela can be traced down until it ends in another head with the serpent scroll attached to the back of it. Issuing from the jaws of this lower head is a grotesque-headed creature with the winged scroll on its forehead. This grotesque figure holds in its hand something to which it is not at present possible to attach any meaning or any name; it is of constant occurrence (compare Plate VIII.), and it is hoped that further investigations may determine its nature. On the upper part of A, Plate XLVI., two grotesque figures adorned with bracelets, anklets, and breastplates, and each clothed only in a loin-cloth, may be seen grasping the serpent.

Following the design down the side of the Stela, below the serpent's head appears the curved tail of another serpent, which cannot be further traced, and again below this another serpent's tail, joined to a grotesque head hanging forehead downwards with the serpent scroll attached to it. Below this, again, is another serpent's head with a grotesque head issuing from its mouth, similar to the first described. The body of this snake is lost at the bottom of the monument, where the carving is much broken away.

The remaining space is occupied by a glyph, formed in part of a grotesque head in profile, with the serpent scroll attached to it, with the numeral seven in front of it. Beneath the glyph is some rectangular ornament which cannot be satisfactorily made out.

The other side of the monument B (Plate XLVI.) is similar in general design, differing only in details. The figure issuing from the serpent's head on the top of the monument has in its hand a human head with feathers or scroll-work attached to it. And the upper grotesque figure leaning over the body of the serpent holds a mask-headed baton supported on its right arm.

On the lower part of this side of the monument there are two Glyphs, the upper with a number which is probably eight, and the lower with the number fourteen attached to it.

Although great care has been taken with the drawings of the ornamentation of this monument, the damage which it has suffered is so great that it is by no means certain that the connection of the heads and bodies of the serpents has been correctly made out.

The back of Stela D (Plates XLVII. and XLVIII.) presents an altogether different form of ornamentation to that previously described, and only this one example of it occurs at Copan. It is an inscription not in hieroglyphics, but in what may be termed "picture-writing." The "heading" is practically the same as that of the hieroglyphic inscriptions, but somewhat further elaborated, and the initial series ends in (No. 6) a cartouche with a whole figure within it in place of the customary head. It is not proposed further to analyze the contents of this inscription until others of a similar character which occur at Quirigua can be offered for comparison, but the fact

that something approaching an initial series occurs also in this form will doubtless prove of great assistance to anyone attempting the interpretation of the hieroglyphics.

The round disc in No. 12 is owing to a hard nodule occurring in the stone, which was not susceptible of sculpture with the tools the artist had at his command. A similar nodule has been met with between Nos. 4 and 5, which has been entirely removed, and the carving continued over the concave surface of the stone. A similar nodule has doubtless been extracted from the west side of the monument, just below the lower serpent's head.

In front of this monument is a monolithic altar shown in Plate XLII.

The south side (*a*) facing the plaza appears to represent a death's head. On the side facing the monument is (*b*) a huge grotesque head of a more usual type without a lower jaw.



STONE HEAD IN THE BRITISH MUSEUM, SAID TO HAVE COME FROM COPAN.

STELA E. (Plate XLIX.)

Approximate height 10 feet. Average breadth 2 feet 3 inches.

Stela E is a fallen and defaced monument, lying on the terrace to the east of mound No. 1, Plate I. No photograph was taken of it. The inscription on the sides and back (Plate XLIX.) has been drawn from a plaster cast in the South Kensington Museum.

STELA F. (Plates L. to LII., see also *b*, Plates IV. and LIV.)

[Compare Stephens's 'Central America,' vol. i. p. 152; and Catherwood's Views, Plate 3.]

This monument (F, Plate I.), which stands on the east side of the Great Plaza and faces west, is in such a bad state of preservation that but little can be said about it. The principal figure is carved in high relief, and the dress and ornaments are similar to those already described. Below the face is an ornament, which appears to be connected with the moustache, like that already noted in Stela B. The head is surmounted by a grotesque mask, above which are traces of a seated human figure.

The sides of the monument (*a*, Plate LI.) are ornamented with serpents' heads and small grotesque figures, one above the other, and an arrangement of feathers with rosettes on them.

The feather-work is continued over the back of the monument (*b*, Plate LI.), as are also the twisted bodies of the serpents, which are twined in and out of the hieroglyphic inscription, breaking it up into groups, each containing four glyphs.

The inscription is given on Plate LII., drawn from photographs, with some additions taken from Catherwood's plates, as the monument was in a somewhat better state of preservation when his drawings were made.

The altar standing in front of this monument to the west (Plates L. and *b*, LI.) almost baffles description. The east and west sides are alike, and appear to represent a grotesque face without a nose and without a lower jaw. A triple band, similar to those already noted on the bracelets and anklets of some of the large figures, is tied in three knots over the forehead. Lying partly over this band are two bent limbs with tiger-like claws. Between the eyes a smooth blank space is left on the stone, and it seems probable that the nose may have been cut from a separate block of stone and afterwards fitted into its place, but no trace of such a detached nose could be seen. Two projections ornamented with scrolls rise from the sides of the altar, and almost divide the top surface across the centre.

ALTARS G. (Plates LII, *b* & *c*, to LIV.)

At G is a group of three carved stones which are not mentioned by Stephens. These stones may for convenience be classed as altars, although the use to which they were put is very doubtful. All three were overturned and broken, and one of them is almost entirely destroyed. Photographs of the two which are in the best state of preservation are given on Plates LIII and LIV. (*a*).

Each end of G 1, the larger of the two stones figured, is carved into the shape of a huge serpent's or dragon's head. The best preserved of these heads is resting on two skeleton arms with claw-like hands. The upper jaw is, as usual, much exaggerated and furnished with large recurved teeth. Out of the mouth is protruding the upper part of a human figure with a grotesque head. The dragon's head on the other end of altar has been partly broken away. The tongue is carved into the shape of a serpent's head in the manner already noticed on pages 28 and 29. The head protruding from this dragon's mouth is human in form.

Both the dragons' heads are fringed with feathers, and between them is a hieroglyphic inscription.

On one side of the altar this inscription is so much weatherworn that I did not consider it worth moulding, an omission which I now much regret. A drawing of the inscription on the other side is given on Plate LIII. (*b*); it is somewhat irregular in shape, owing to the presence of a large round flinty nodule in the stone. Above the inscription a niche is cut in the stone, which may have served as a receptacle for offerings.

The shape of G 2, the second altar (Plate LIV., *a*), is a reversal of the one already described. In this altar the body of the animal forms a sort of arch connecting the two serpents' or dragons' heads, and the niche is below. I can only suggest that it may have been the custom to place brasiers with copal underneath the stone, so that the smoke might ascend over the animal's body.

The inscription from one side only of this altar is figured on Plate LII. (*c*). The glyphs on the other side were almost entirely obliterated.

The third altar of this group is very much broken and defaced, but it appears to have been of somewhat the same form as that last described. No photograph of it was taken.

STELA H. (Plates LIV., *b*, to LXII., *a*.)

[Compare Stephens's 'Central America,' vol. i. pp. 149, 150; and Catherwood's Views, Plate 1.]

Height 12 feet. Breadth 3 feet 3 inches.

The circle of small stones which forms the edge of a low platform on which this monument stands can be seen in the photograph (Plate LIV., *b*). Three out of the four large stones which surrounded the base of the monument itself are still in place.

The front of the monument, which faces the west, presents the figure of a woman carved in high relief (Plates LV., LVI., & LXII., *a*). With the exception of a skirt, which was apparently made of tiger's skin, braided with a crossbar work of alternate long and round beads, the costume and adornments differ but little from those already described. The minor differences are the presence of a second ornament overlaying the centre of the breastplate, the simplicity of the bracelets and sandals, on which there are no grotesque heads, and the modification of the girdle.

In the centre of the head-dress is a large grotesque mask, and at each side of the mask is an arrangement of serpents' heads without lower jaws. One of these heads is fringed below with feathers and tassels—a design which will be found frequently repeated on other monuments. The other head has a band hanging from it adorned with tassels and rosettes.

Above the large mask is the remains of what may have been another grotesque head, backed with tiger's skin.

The whole head-dress is surrounded by gracefully arranged feather-work.

The sides of the monument (Plates LVII. to LIX.) are somewhat similar to one another in design. The lower part is occupied by an oval, a loop, and an attached scroll, in a form which constantly occurs amongst the hieroglyphics; it here forms a framework for a grotesque-headed human figure. From the top of the scroll spring two entwined serpents, whose bodies extend to the top of the monument; but it has not been found possible to trace their convolutions exactly nor to attach to them the heads and the tail ornaments which form part of the decoration. Two human figures holding on to the bodies of the serpents peer out from amidst the feather-work. The lower of these two figures on the south side of the monument holds a mask-headed baton in his left hand.

The back of this monument (Plates LX. and LXI.) is very elaborate in design. It is surrounded by a fringe of feathers and rosettes. On the lower part is an inscription of eight much defaced glyphs. In the centre of the design above the inscription is a grotesque mask with large ears and ear-scrolls, and with a four-lobed mark on the forehead. Below this mask is a plaited ribbon, from which hangs an apron similar in design to those already described as hanging from the girdles of the principal figures on

the other monuments; but in this case the central face is covered by a small seated human figure with one arm resting on its knee, and the other passed through the eye of the serpent's head ornaments.

In the upper part of the design, above the central mask, is the figure of a sort of grotesque bird, whose claws can be seen grasping a horizontal bar. Two plumed and tasselled serpents' heads of the conventional type take the place of outstretched wings. From the mouth of the bird hangs what may be called a tongue with three round spots on it, and apparently attached to the end of the tongue is a plaited ribbon. Below the bar clutched by the claws of the bird is a design something like that of the breastplates of the principal figures, with the difference that in place of the serpents' heads are what appear to be two grotesque birds' heads. On the central panels of this ornament there is twice repeated one of the symbols which occur so frequently on girdles and breastplates.

To the birds' heads at the end of this ornament is apparently attached the plaited ribbon which hangs down on each side of the central mask and ends in a serpent's head with disks and tassels attached to it.

There now remains to be mentioned that part of the design (coloured red) which extends from the tongue of the grotesque bird to the top of the central mask. I have no doubt that it is a symbolical ornament especially connected with the mask below it, and one of considerable importance. It is not only repeated again at Copan, but is also of frequent occurrence at Palenque and Menché.

The following figures give some examples of this ornament.



In *a* (Stela I, Copan) the full front view is given.

In *b* (Stela H, Copan) the left-hand part is given in profile.

In *c* (interior mural decoration, Palenque) both the centre and left-hand parts are given almost in profile.

Up to the present no example has been found of the use of this ornament except in connection with the head or mask having the four-lobed mark on its forehead, and it

The remainder of the inscription on the sides has a consecutive series of numerals running through it, and appears to have been made up of a number of short sentences or paragraphs.

This arrangement is clearly shown on Plate LXX., where the inscription is redrawn and the paragraphs placed one under the other.

The east face or back of the monument (Plates LXVI. (*a*), LXXI., and LXXII.) is completely covered by an inscription, in which the glyphs are arranged on a ribbon in diagonal lines, an arrangement which is not met with elsewhere.

As it is improbable that the sculptor could have thus arranged the glyphs without some pattern to refer to, I tried to construct such a pattern with strips of paper, and succeeded in making a plait all in one piece, which is figured on Plate LXXI. The heading and first five glyphs of the Initial series are fairly distinct, and clearly indicate where the plait should commence, and it will be seen that the last glyph on the plait (No. 48) lies exactly opposite the heading. The most difficult part of the arrangement of the plait is at the bottom, where unfortunately the carving is much worn; but although it may be possible to turn this part of the plait somewhat differently, no other arrangement is likely to alter the sequence of the glyphs to any great extent.

On the assumption that this plan for the numbering of the glyphs is correct, another copy of the inscription is given on Plate LXXII., in which the glyphs are arranged in the usual form of double columns, so as to facilitate comparison with other inscriptions.

ALTAR K. (Plate LXXIII., *a*.)

This is a small flat-topped altar about 2 feet 6 inches square and 1 foot high. The inscription given on Plate LXXIII. (*a*) is carved on the four sides.

ALTAR L. (Plate LXXIII., *b*.)

This is a block of stone measuring about 3 feet 7 inches square and 2 feet 3 inches high, carved on one side only. A drawing made from a plaster cast is given on Plate LXXIII. (*b*).

STELA M. (Plate LXXIV.)

Height not measured—probably about 10 feet. Breadth 2 feet 6 inches.

This monument is lying on its face, and is broken into two or three pieces. I was not able to turn over the blocks of stone and examine the figure carved on the underside. A mould of the inscription on the back was made in paper, and a drawing from the cast is given in Plate LXXIV.

Within a few feet of Stela M is an altar (Plate LXXV., *a* & *b*) which may be roughly described as a square-shaped block of stone fashioned into the form of a four-legged grotesque animal without a head. In the flat surface, both on the front and back of the monument, there is a large hole, and it seems probable that into these holes heads had formerly been fitted. The animal represented may have been the double-headed dragon already given on Plates IX. and XII.

Close to this altar a stone head was found with tenon attached, which fitted fairly well into the hole in the front of the altar. The head is shown in this position in the Photograph on Plate LXXV. (*a*). There is a four-lobed mark on the forehead as well as the peculiar marks already mentioned and figured on page 51, usually found in connection with one of the heads of the two-headed dragon. The photograph (Plate LXXV., *b*) is not sufficiently good to show clearly the hole in the back of the altar into which, if the suggestion made be correct, the second head of the dragon would have been fitted.

The sides of the altar, between the fore and hind legs of the animal, are shaped into large grotesque faces, and the top of the altar is also carved into a huge grotesque face similar to the faces *m* and *n* in Plate XXIV. The ornaments over the joints of the limbs and the small groups of tasselled balls will be found in other instances as adornments of these dragon-like figures.

STELA N. (Plates LXXVI. to LXXXIII., *a*.)

[Compare Stephens's 'Central America,' vol. i. Frontispiece and p. 138.]

Height 11 feet 6 inches. Breadth 4 feet 2 inches.

This is the most elaborately carved of all the monuments now standing at Copan, and is in fairly good preservation, although it has suffered some damage since Mr. Catherwood sketched it in 1839.

The sculpture is similar in general design on the front and back of the monument.

A paper mould was taken of the hieroglyphic inscription on the sides of the
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monument, but the drawing of the rest of the sculpture has been made from photographs only. A considerable number of photographs were taken, and the prints have been very carefully compared one with the other.

On the front of the monument (Plates LXXVI. and LXXVII.) is a large human figure standing in the usual conventional position, with the hands raised to the breastplate. The projecting ends of the ear-ornaments have been broken off. Above the head is a large grotesque mask without a lower jaw. On either side is a plaited ribbon, edged with round disks. The forehead of the mask, on which is a cross hatched mark, is bound round with a cord, knotted in front, and forming on one side a loop, and on the other a sort of flower-like expansion, to which is attached a grotesque-looking fish. Only a small fragment of the lower part of the fish is now left, but it is restored in the drawing from Catherwood's plates and from other examples on this same monument.

This flower-and-fish ornament will be again found at Chichén Itzá, and there is also something like it at Palenque. Springing from the corner of the mask above the loop is an ornament (coloured the same as the mask) which will be recognized as part of the design figured on page 51, and it may possibly connect this mask with the head of the double-headed dragon. Above the mask is a very curious ornament now much broken; it is restored on Plate LXXVII. from Catherwood's plates, and is left uncoloured.

The shoulders of the principal figure are covered with a cape made of the usual oblong flattened plates: the breastplate is of the ordinary form and has grotesque figures issuing from the serpents' mouths; over the centre of the breastplate is an inverted grotesque mask, coloured green in the plate.

The bracelets, girdle, apron, garters, and sandals are similar to those already described on other monuments.

On either side of the great mask over the head of the principal figure is an alligator's or dragon's head, turned towards the side of the monument, and the drawing on Plate LXXIX. shows the looped or tasselled ornament which is attached to the end of the dragon's snout, and the scroll ornament, decorated with a cross-marked oval, which hangs from its chin. Above the dragon's head is a boss shaped into a grotesque full face, from which springs a large double scroll.

Amongst the feather-work on the upper part of the monument are three much-mutilated figures—one in the centre seated cross-legged, and holding on to what is either the remains of his breastplate or the body of one of the entwined snakes which form one of the principal features in the decoration of this monument. The heads of these snakes are very conventional in form, and can be seen (coloured green) both in the front and back views on a line with the knees of the principal figures. The bodies ascend the sides of the monument, Plates LXXVIII. & LXXIX., and apparently pass over the upper part of the head-dresses of the principal figures, but the sculpture is

here so much broken that the bodies cannot be traced continuously; then descending the sides they form loops with the ascending coils, and end in curiously-shaped ornaments on either side of the four lowest glyphs of the inscription.

At each of the four corners of the base of the monument is crouched a grotesque creature, half man half beast (tinted grey), supporting in its huge open mouth a small human figure. These grotesques can be seen in the front, back, and side views. The figure at the south-east corner is the most peculiar, its frog-like upper jaw, which is turned right back, is seen in the south view only, the lower jaw can be seen in the east view, and it will be noticed that the whole of the front part of the body below the jaw is turned into a huge grotesque face. Above the heads of the human figures which stand in the open mouths of these grotesques is the first intertwining of the ascending and descending serpents' bodies, and the loop thus formed above is in each case occupied by another figure with a grotesque head.

As the back of the monument (Plates LXXXI. and LXXXII.) is turned towards the steep slope of the steps leading to the temple No. 11, it was impossible to place the camera in a good position, and all the views had to be taken looking down on the monument from above.

In general design the sculpture on the back is similar to that on the North face. The small head on the ornament hanging over the breastplate is different in shape. The mask over the head of the principal figure is in better preservation, and more dragon-like in form; the forehead is bound by a knotted cord, which ends in a flower-like expansion with a fish attached to it. On either side of the mask, instead of the alligator's head, there is a grotesque head, with a cross-bar ornament hanging down in place of a lower jaw; above these grotesque heads is an ornament similar in form to that (left uncoloured) above the head of the large central mask; but these latter ornaments can be seen best on the side views.

Plate LXXXIII. (a) gives a drawing of the inscription on the four stones placed round the foot of the monument; unfortunately the cast is not quite complete, as there were probably some additional glyphs at the end of the lines carved on separate and smaller stones, which were overlooked.

In front of this monument is an altar (Plate LXXXIII., b) rather smaller, but somewhat similar to that already described as lying near the fallen Stela M, but in this case the whole design is carved out of a single stone. It is in the form of a double-headed dragon (a head at each end) with four legs. The sides of the body between the legs are shaped into huge grotesque faces. Round the top of the altar runs a broad band with cross ties at intervals and loops at the end.

ALTAR O. (Plates LXXXIV. and LXXXV.)

Greatest length (on the ground) 7 feet. Greatest height 3 feet 5 inches.

This altar is not mentioned by Stephens: it stands on the east side of Mound No. 7, and is somewhat similar in outline to G (1) figured on Plate LIII., with a niche cut in the upper surface, but it differs from it considerably in detail.

On the west side (Plates LXXXIV., *a*, and LXXXV., *a*) the surface is covered with the semblance of a conventional plumed serpent. A double scroll (shaded) issues from the open mouth; the end of the upper jaw is turned up and forms a small grotesque face, which is seen in profile. There is a plume of feathers under the chin of the serpent, and from the corner of the mouth hangs a tongue which is fashioned into a conventional serpent's head without a lower jaw. The usual scroll springs from the back of the head. The body is clothed with scales, and ornamented with three pairs of circular markings. The line of the back and the underpart of the tail is fringed with feathers. Where the body begins to curl upwards the figure of a small serpent occupies the corner of the stone.

On the east side (Plates LXXXIV., *b*, and LXXXV., *b*) there are two serpents. The heads are similar to that of the serpent on the east side, but they are furnished with arms and claw-like hands. The bodies are more snake-like in form, and attached to the tails are ornaments marked with a conventional full face, from which spring double scrolls.

Between the twisted bodies of the serpents is a detached ornament crowned with a plume of feathers.

The ends of this monument (Plate LXXXV., *c* & *d*) are somewhat worn. On the north end (Plate LXXXV., *c*) is carved a frog and a fish, and on the south end a smaller fish and two human figures.

STELA P. (Plates LXXXVI. to LXXXIX.)

[Compare Stephens's 'Central America,' vol. i. p. 140.]

Height 10 feet 7 inches. Greatest breadth 2 feet 7 inches.

This monument stands in the Western Court, near the foot of a flight of steps (Plate I. No. 15), and faces the west. The principal figure on the front (Plates LXXXVI. and LXXXVII.) is in the usual conventional pose, with hands held up to the chest. The face has been mutilated. The ear-bosses are large and around them are a number of ornaments, plaited ribbons, feather-work, and portions of the conventional serpents'

heads, which are difficult to describe in detail. Below the face of the principal figure is a grotesque mask with a cross-bar ornament hanging from its mouth. The shoulders seem to have been covered with the usual cape of flattened plates, which is almost completely hidden by a number of other ornaments. The breastplate (coloured red) varies considerably from the usual form. The serpents' heads on the ends of it are of the customary type, but instead of a stiff panel connecting them they are joined by a conventional representation of a snake's body, which curves downwards and encloses a human head ornament in the loop.

Grotesque heads (themselves furnished with serpents' heads as head-dresses) with hands issue from the open serpents' mouths at the ends of the breastplate.

The girdle and apron differ from the usual design only in the treatment of details. A jagua's skin with a fringed edge hangs from the waist. The lower part of the legs and feet are almost entirely broken away.

Above the head of the principal figure is a large grotesque mask without a lower jaw. There is a deep hole where the nose should be, and it seems possible that a rather prominent nose may have been carved out of a separate stone with a tenon to fix it into this hole. Above this large mask are three smaller masks one above the other.

The ornament which runs behind the uppermost mask and across the face of the monument baffles description. It has been left uncoloured in the Plate: on one side of it is the upper part of a serpent's head with a three-lobed ornament hanging from its upper jaw, and behind this a piece of tiger's skin. It is possible that the scrolls which pass behind the central mask may be meant to indicate a snake's body, and they appear to be attached by a disk or knot and two loops to an ornament like the half of a breastplate.

There remains now only to be mentioned the ornament which was probably attached to the shoulders, and hangs down on either side of the principal figure. It first comes into view beneath the elbows, in the form of two fringed disks or shields, and to these are attached two entwined and feathered snakes with ornaments hanging from their mouths; but the damage done to this part of the monument is so great that the design has been restored (in dotted lines) principally from the shape of the scars left on the stone where the carved surface has been broken away.

It was not possible to take satisfactory photographs of the whole of the back of this monument, owing to its nearness to the steep slope of the pyramidal foundation (Plate I. No. 16). Plate LXXXVIII. therefore gives only photographs taken from the plaster cast, and Plate LXXXIX. drawings made after careful comparison of the cast with a number of photographs of the original.

ALTAR Q. (Plates XC. to XCIII.)

[Compare Stephens's 'Central America,' vol. i. pp. 140-142.]

About 4 feet 8 inches square, and 2 feet 5 inches high.

This altar stands a few feet south of Stela P and is cut out of a single block of stone. Plates XC. and XCI. give photographs of the four sides, and Plate XCII. a drawing made from the cast and photographs.

The design on the sides of the monument is very similar to that on the step taken from temple No. 11, figured on Plate VIII. In this case there are sixteen figures, each seated cross-legged on a glyph—ten of them looking to the right and six to the left. With the exceptions of the figures Nos. 11 and 16 (that is, the first and last of those looking to the left), each figure holds in its hand the same object mentioned on page 46, and which can be seen in the hands of figures in Plates VIII. and XLVI.

The object in the hand of the figure No. 11 is probably meant to represent a torch.

On the top of the altar is an inscription numbering 36 glyphs. A drawing of this inscription and a photograph of the cast is given on Plate XCIII.

 ALTAR R. (Plate XCIV., a.)

Measures 3 feet 4 inches by 2 feet 8 inches, and 1 foot 2 inches in height.

On one side of this altar a death's head is carved in rather bold relief; on the other three sides is a hieroglyphic inscription. The top is unornamented. The drawing on Plate XCIV., a, is from the original sculpture now exhibited at the South Kensington Museum.

 ALTAR S. (Plate XCIV., b.)

Measures 2 feet 1 inch by 2 feet 7 inches, and 11 inches in height.

This altar was found on the summit of the mound No. 29, near the site of the modern village. The drawing of the inscriptions on the four sides was made from a plaster cast.

 ALTAR T. (Plates XCV. and XCVI.)

Height from 2 feet to 2 feet 6 inches.

Length of sides:—North 5 feet 8 inches, south 6 feet 3 inches, west 4 feet 5 inches, east 4 feet 2 inches.

This altar, which is somewhat irregular in shape, stands on what may now be called the Village Green (see illustration on page 10). On the top of the altar is carved an

alligator's body with outstretched limbs; the tail extends over the north side, and the claws of the hind legs on to the east and west sides of the altar.

Figure *c* on Plate XCV. is an attempt to draw the form of this animal on one plane.

The teeth stand out and form a sort of fringe on either side of the head, and on the end of the snout is a curious ornament formed of three small heads—one full face, and the other two in profile. This ornament hangs down over the south side of the altar. The two marks in front of the eyes are probably meant for the usual nose-ornaments; at the back of the head are two disks with winged scrolls issuing from them. The ornaments on the wrists are of some soft material looped and knotted, and one of the loose ends is broadened into the flower-like expansion already noticed on all four sides of Stela N (Plates LXXVI. to LXXXII. and pages 56 & 57). Traces can just be made out of the fish which usually accompanies this ornament. The same ornament can be seen on the anklets, but the fish can be traced near the right foot only and in a different position.

Double oval marks are distributed over the body, and there is a line of scales along both sides of the body and the lower side of the limbs.

Running from the snout across the back and down the middle of the tail is a hieroglyphic inscription, of which, unfortunately, the last three glyphs only have escaped destruction.

Upon the upper surface of the monument are two apparently human figures seated upon the arms of the alligator; both figures are much weatherworn—each has what appears to be a glyph in its hand, which is outstretched towards the alligator's head. Between the alligator's arms and legs four human figures are seated in similar positions, two on each side of the body. These figures have large mask head-dresses, and carry offerings in their hands. Three out of the four offerings are obliterated, and the one remaining is not a copy of any known glyph, but it is easy to suppose that it may be the symbol for fire. There are two figures on the north side of the monument, one on either side of the tail of the alligator, each is seated on a glyph; the figures are human, but in place of a human head each figure is surmounted by a glyph, which has, however, something of a facial appearance in profile. Each figure holds a glyph, with the numeral '10' attached to it, in its outstretched hand.

The figures on the south, east, and west sides of the altar appear to form a double series (six of them facing to the right and six to the left), after the manner of the figures on the step in Temple No. 11 (Plate VIII.) and on Altar Q (Plates XC. to XCIII.)

On the south side the figures are all four human, and each is seated cross-legged on a glyph and facing inwards towards a double line of glyphs which runs from beneath the ornament on the alligator's snout to the base of the altar. Following the series of figures to the east:—

No. 1 (*a*) has something like a moustache on the upper lip. Head covered with

turban head-dress with an inverted heart-shaped ornament on the side of it possibly representing a tiger's ear. A small breastplate on the chest and a long bead necklace hanging to the waist. In the right hand is the object which has been referred to before, and which can be seen in the hands of some of the figures in Plates VIII., XLVI., and XCII. It appears to be some folded or laminated substance bound round the middle, to form a convenient handle, and is somewhat suggestive of the Samoan orator's fly-flap, although evidently made out of a different material.

No. 2 (*a*). A distinctly bearded face. The turban-like head-dress spotted as though made of jagua-skin. The ornament over the ear probably a tiger's foot.

The other ornaments are much the same as on No. 1, and a similar object is held in the right hand, but with the folds or laminae more divided.

No. 3 (*a*) is a human figure with the head of a leaf-nosed bat. It is seated on the ground, not on a glyph; the head-dress is worn away, but above it is what was in all probability the figure of a small serpent.

No. 4 (*a*). The figure is seated on the ground. The face has altogether disappeared, but the large serpent mask head-dress is in fair preservation. The figure is furnished with a snake's head in place of a human hand.

No. 5 (*a*). The figure is seated on a glyph; the body is human, but the head is that of a jagua; from the top of the head-dress issues a complex scroll.

No. 6 (*a*). Is a small human figure seated cross-legged on a glyph. The head-dress is large and turban-shaped, and resting on the flat top of it is a serpent with a long forked tongue issuing from its mouth. There is a glyph enclosed between the upcurved body of the snake and the flat top of the head-dress. The large scar in front of the nose of the figure is probably caused by the breaking away of the nose ornament and the surface of the stone around it. The upper part of the figure is clothed in a cape covered with a network of beads, and a similar bead-ornament envelopes the crossed legs.

The series of figures to the west is as follows :—

No. 1 (*b*). The figure is seated on a glyph. The face without moustache; otherwise as far as the ornaments can be traced they are similar to those on 1 (*a*).

No. 2 (*b*). The figure is seated on a glyph. No breastplate; cape ornamented with bead network. Turban head-dress; object held in the hand much broken.

No. 3 (*b*). A large bird standing on the ground, the left wing partly extended.

No. 4 (*b*). Figure seated on the ground, with human body and alligator's head. A winged scroll rises from the back of the head. Apparently hanging from the back is the upper part of a conventional serpent's head with a cross-barred ornament and feathers attached to it. This ornament, as will be explained further on, is probably the wing of the Serpent Bird.

No. 5 (*b*). A figure seated on the ground, with a human body and animal's head; but what animal it is meant to represent cannot yet be determined.

No. 6 (*b*). A small human figure seated on a glyph, in all respects similar to 6 (*a*).

ALTAR U. (Plates XCVII. and XCVIII.)

Length 5 feet. Breadth 2 feet. Height 3 feet.

The front of this altar (Plate XCVII., *a*) is a huge grotesque face without a lower jaw. Across the forehead is a broad band, similar in shape and ornamentation to some of the breastplates.

On each side of the altar is a serpent's head with open mouth in which a human figure is seated cross-legged.

On the top and back of the altar (Plate XCVII., *b*) is a hieroglyphic inscription, and there are also two glyphs on each side of the altar above the serpents' heads which appear to belong to the inscription. It is of course impossible as yet to determine the sequence of the glyphs with certainty, but on Plate XCVIII. the whole of the inscription is drawn, and the glyphs are numbered in the order which appears to me most likely to be correct. The glyphs on the top of the altar are much weather-worn.

 THE SERPENT BIRD. (Plate XCIX.)

In describing the back of Stela H (page 51) mention was made of a sort of grotesque bird with two plumed and tasselled serpents' heads of the conventional type in the place of outstretched wings. It appears now to be desirable to give some other examples of this peculiar design (which, for convenience of reference, will be called the 'Serpent Bird'), as an appreciation of the factors composing it enables one to understand much of the complicated ornament which is of such frequent occurrence on the monuments.

The most essential character of the design seems to be the presence of a conventional snake's head (without a lower jaw) in place of, or overlying, the bony structure of the bird's wing.

The 'Serpent Bird' may of course be only another way of expressing the idea intended to be conveyed by the 'Feathered Serpent,' of which so many examples have already been given, but the two forms appear to be sufficiently distinct to justify the employment of different names.

On Plate XCIX. are given examples of the Serpent Bird taken from sculpture in widely distant localities.

Fig. *a* is copied from the upper part of the central slab fixed into the back wall of the Temple of the Feathered Cross at Palenque. The wing of the bird is erect and the serpent's head (which is coloured red throughout the series) is inverted.

Fig. *b* from the back of Stela H at Copan (Plates LX. and LXI.) gives a front view of the bird and shows clearly a peculiarity of frequent occurrence in the design, namely,

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the three sets of double tassels hanging from the serpent's head and the sort of curtain fringed with short feathers, which is usually (although not in this instance) ornamented with a diagonal cross (saltire).

The large feathers of the wings are probably represented as curving round and the tail-feathers as hanging over, in order to form the graceful rosetted feather-edging to the monument.

Fig. *c* is copied from part of the decoration of a wooden lintel (the original is now in the Museum at Basle) taken from one of the Temples at Tikal. It gives a full face view of the bird; the serpents' heads are inverted and the diagonal cross on the curtain is clearly shown.

In figs. *b* & *c* the curtain and feather-edging is coloured yellow and the tassels blue.

Fig. *d* is a square of picture-writing from an Initial Series heading the hieroglyphic inscription on the east side of Stela D at Quirigua.

Fig. *e* from a similar series on Monolith B at Quirigua. In both these examples the birds vary considerably in form, but the chief characteristic of the snake's head on the wing remains the same although the curtain and tassels are absent.

The drawings of the picture-writing on the monuments at Quirigua were those first attempted when materials were being collected with a view to the publication of this book, and even with good casts and photographs to work from the task of making intelligible copies appeared to be almost hopeless and the drawings were laid aside for some years. Now that the serpent forms are better understood and especially that of the Serpent Bird, it is possible to account for nearly every line of the complicated decoration.

It is only natural to find a race dwelling in the Tropics using the brilliant plumage of birds in personal adornment, but the frequent occurrence of the Serpent Bird appears to indicate that that particular conventional form was invested with sacred attributes. And the preference shown in the use of the wing of the sacred bird, especially in head-dresses, accounts for much that is otherwise difficult to understand in the carved ornament.

Fig. *f* gives the head and head-dress of one of the figures on a stone lintel from Menché, —here a portion only of the serpent's head can be seen; but one tassel, the curtain, the short feather-fringe, and the long wing-feathers form prominent features in the design, and there can be no doubt that the wing of the Serpent Bird is the object represented.

Figs. *g*, *h*, & *i* are also examples from Copan and Quirigua of the wing of the Serpent Bird used independently in decoration. In fig. *i* the feathers are entirely omitted, and it is only through the presence of the curtain and diagonal cross that the connection can be inferred.

THE EXPEDITION OF 1894.

IN the year 1891 (mainly, I believe, through the public-spirited enterprise of Mr. Charles P. Bowditch) an arrangement was come to by which the Peabody Museum of American Archaeology and Ethnology of Harvard University acquired the care of the antiquities of the Republic of Honduras for a period of ten years, with the right of exploring ruins and taking away one-half of the objects found in the excavations.

The first use made of this concession was to equip an expedition, which left Cambridge, Massachusetts, in the autumn of 1891, to carry on the exploration of the ruins of Copan. A second expedition, despatched in the following year, was marked by the lamentable death of the leader, Mr. John G. Owens, who died of fever, and lies buried at the ruins beside one of the great monoliths in the Plaza.

During the winter of 1893-94 I travelled in Guatemala in company with my wife*; and as the authorities of the Peabody Museum, owing to Mr. Owen's death, were not prepared to send out their annual expedition, I visited Copan as the representative of the Museum, and we remained camped in the ruins from the 1st to the 21st March, 1894.

A record of the excellent work done by the American expeditions will be found in the Memoirs of the Peabody Museum†. One piece of work done by the Americans cannot be too highly commended: it is the erection of a substantial stone wall completely enclosing the principal group of ruined buildings.

In the Editorial Note to the first of the Peabody Museum Memoirs, Professor Putnam says:—"As Mr. Maudslay had given names, with reference by letters and figures, to the various portions of the Ruins and to prominent sculptures, the same designations are given in this report and the accompanying plan. Additional features have been indicated by continuing in sequence the letters and figures, thus avoiding duplication and confusion."

In dealing with those monuments not already numbered or lettered by me on Plate I., or on the sketch-map on page 15, I have followed the letters and figures given in the Peabody Museum Memoirs.

In 1894 I was able to complete the moulds of inscriptions which were omitted from

* See 'A Glimpse at Guatemala, and some Notes on the Ancient Monuments of Central America,' by Anne Cary Maudslay and Alfred Percival Maudslay. 4to. John Murray, London, 1899.

† Memoirs of the Peabody Museum.—Vol. I. No. 1: Prehistoric Ruins of Copan, Honduras. A Preliminary Report of the Explorations by the Museum, 1891-95. 48 pages; large map; illustrations in text; 8 plates. 1896. No. 6: The Hieroglyphic Stairway; Ruins of Copan. By George Byron Gordon. 38 pages; 26 illustrations in text; 18 plates. 1892.

the earlier series, and to mould some inscriptions from monuments discovered by the Peabody Museum Expeditions.

STELA 1. (Plate C.)

Position:

Western base of Mound No. 9, facing west.

This monument was found broken and fallen, and has been replaced in an upright position. The base of the stela was found in place by the Peabody Museum Expedition, on the second step of the stairway forming the western slope of Mound 9.

A circular altar with an almost obliterated inscription was lying beside the fallen stela.

STELA 2. (Plates CI.-CII. and CIII., *a*.)

Position:

Southern base of angular extension of Mound 10.

This monument had fallen, and was placed in an upright position by the Peabody Museum Expedition. In style both the figure and inscription resemble those on Stela P, the much-damaged Stela 3, and Stela 7.

STELA 3, lying to the south of Mound 4, is so much destroyed that no drawings of it have been made.

STELA 4. (Plates CIII., *b* & *c*, and CIV.)

Position:

Near the centre of the Great Plaza.

This monument is fallen and broken in pieces. Mr. Erwin Dieseldorff, who was in Copan for some weeks in 1894, made an excavation at the base of the monument and found the carved stone of which a drawing is given on Plate CIV.* This stone is,

* The small cruciform vaults usually found beneath the monoliths are described in the Peabody Museum Memoirs.

without doubt, of earlier date, and is here used as a structural support without regard to the figures and inscription carved on it. A stone with a similar design was found by the Peabody Museum Expedition, forming part of the underground support of Stela 5; and one of the blocks forming the steps of the hieroglyphic stairway was found to have a fragment of the same design carved on its underside, where it could not possibly be seen until the block of stone was moved from its place.



STELA 5, which stood near Stela 6, is fallen and broken in many pieces.



STELA 6. (Plates CV.-CVII.)

Position:

To the north of the path leading from the ruins to the modern village.

This is a fallen stela, which has been raised in place again by the Peabody Museum Expedition.



STELA 7. (Plate CVIII.)

Position:

In Copan village, west of Altar U.

This monument lies on the ground, broken. The full-length figure on the front is much destroyed. In style this monument is similar to Stela P 2 & 3.



STELA 8. (Plate CIX.)

Position:

To the north-west of Copan village.

One of three stones lying close together. Stela 8 has inscriptions only on the two faces.



STELA 9. (Plate CX.)

Position :

Close to Stela 8.

A drawing is given of the inscription on three sides of the monument. The carving on the fourth side was almost completely destroyed.



STELA 10. (Plate CXI.)

Stela 10 lies fallen on the summit of a hill about two and a half miles to the west of the ruins.

STELA 11. (Plate CXII., *a-e*.)*Position :*

In the Passage to the south of the Eastern Court.

This small column, about 3 feet high, was discovered in 1892 by the Peabody Museum Expedition. The figure and the inscription flattened out are given on Plate CXII., *a* & *b*, and the general appearance of the column in *c*, *d*, *e*.

ALTAR Z. (Plates CXII., *f-i*, and CXIII., *a*.)*Position :*

On the raised plateau between the Eastern and Western Courts.

This small altar was discovered in 1893 by the Peabody Museum Expedition. Height $2\frac{1}{2}$ feet.

Plates CXIII., *b*, and CXIV., *a-e*.

Plate CXIII., *b*, gives a photograph of the eastern side of Mound 7, showing Altar O (figured on Plates LXXXIV. & LXXXV.), and another altar one side of which is figured on Plate IX., *b*, and erroneously described as an "ornament fallen from the

stairway leading up to Temple No. 11"; the opposite side is figured on page 16 and erroneously described as "part of the face of a step from the hieroglyphic stairway." I am unable now to trace the origin of these errors, and have given (Plate CXIV., *a-e*) a complete drawing of the four sides of the altar, and a perspective view showing the frog-like figure which extends over part of the upper surface and over one end of the altar.

Plate CXIII., *c*.

Gives a side view of the altar in front of Stela D, already figured on Plate XLII.

Plates CXIV., *f-h*, and CXV., *a-c*.

These photographs and drawings show the result of a careful examination of the ground surrounding the base of the altar in front of Stela F (already figured on Plates L. & LI. and described on page 48) and the discovery of fragments of detached stones which completed the design.

The drawings were made from the photographs and from my notes, and are partly restorations. The colours are added merely to differentiate the two huge grotesque faces, one on each side of the altar, from the figure of the jaguar at each end.

Plate CXIV. G 1-3.

The inscription is here given from both sides of the altar G 1 (one side only was figured on Plates LII. and LIII.), and there is also given a drawing of all that can be made out of the inscription on Altars G 2 and G 3.

Plates CXVI. and CXVII.

Give views taken in the great Plaza in the year 1894.

Plates CXVIII. and CXIX.

Give photographs of the four sides of Altar T, of which drawings have already been given on Plates XCV. & XCVI.

BIOLOGIA
CENTRALI-AMERICANA;

OR,
CONTRIBUTIONS TO THE KNOWLEDGE
OF THE
FAUNA AND FLORA
OF
MEXICO AND CENTRAL AMERICA.

EDITED BY
F. DUCANE GODMAN AND OSBERT SALVIN.

ARCHÆOLOGY.

By A. P. MAUDSLAY.

VOL. II.
(TEXT.)

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QUIRIGUA.

PRINCIPAL NOTICES AND DESCRIPTIONS OF THE RUINS.

I CAN find no notice of the ruins of Quirigua earlier than that in Stephens's Travels*. Stephens did not visit the ruins himself, and merely relates the account given to him by his companion, Frederick Catherwood, who, in the year 1840, was able to make an excursion to Quirigua whilst Stephens was absent in Salvador. Catherwood spent only one day at the ruins and made rough sketches of two of the monoliths; but beyond the fact that it is the earliest account of the monuments which we possess, his description of them has no longer any particular value.

In the year 1854 Dr. Karl Scherzer† made a short visit to the ruins and wrote a description of them. He was told by the villagers that the flood in the Rio Motagua rose to a great height in 1852, and that some of the monuments were then overthrown.

PERSONAL NARRATIVE.

Early in January 1881 I arrived at Livingston, the Atlantic port of Guatemala, and thence travelled in a very rickety steam-launch up the Rio Dulce and across the Golfo Dulce to the village of Yzabal. Here I hired mules and rode a distance of about eighteen miles over the Sierra de las Minas to the cattle rancho of El Mico, which is within a mile of the village of Quirigua. After a day's rest I set out accompanied by some of the villagers to visit the ruins which lay buried in the forest near the left

* Incidents of Travel in Central America, Chiapas, and Yucatan. By John S. Stephens. John Murray: London, 1841.

† "Ein Besuch bei der Ruinen von Quirigua." Karl Scherzer. Sitzungsberichte der k. Akademie der Wissenschaften, vol. xvi. Vienna, 1855.

Biol. Centr.-Amer., Archæol., Vol. II., September 1899.

bank of the Rio Motagua. Starting from the rancho, which stands amongst pine-woods six hundred feet above the sea-level, an hour's ride brought us down to the edge of the plain through which the river Motagua flows. Here the path ended in some native plantations, and we then followed a track newly cut through the undergrowth by some villagers who had been sent ahead of us. The whole distance from the rancho of El Mico to the ruins is about five and a half miles.

I was naturally anxious and expectant on this my first visit to a Central-American ruin, but it seemed as though my curiosity would be ill satisfied, for all I could see on arrival was what appeared to be three moss-grown stumps of dead trees covered over with a tangle of creepers and parasitic plants, around which the undergrowth had been cleared away for the space of a few feet. However, a closer inspection showed that these were no tree-stumps but undoubtedly stone monuments (A, C, D, on Plate II.). We soon pulled off the creepers, and with rough brushes, made by tying together the midribs of the leaflets of the *corosa* palm, we set to work to clear away the coating of moss.

As the curious outlines of the carved ornament gathered shape it began to dawn upon me how much more important were these monuments, upon which I had stumbled almost by chance, than any account I had heard of them had led me to expect. This day's work induced me to take a permanent interest in Central-American Archaeology, and a journey which was undertaken merely to escape the rigours of an English winter has been followed by seven expeditions from England for the purpose of further exploration and archaeological research.

On this first visit to the ruins I stayed only three days in the forest, and during that time was able to examine and photograph five of the standing stelæ and two of the great stone animals or altars; but so dense was the undergrowth, that, although we were encamped round Stela A, it was only on the third day that I caught sight of the monument B, which lay within a few feet of my camp-cot buried beneath the decaying trunk of a huge tree, and wrapped round with a tangle of creepers and lianes.

I again visited Quirigua in 1882, and as some men had been sent on a week ahead of me to fell trees and clear away undergrowth, I was able during a stay of five days to examine all the monuments marked on the plan, with the exception of one fallen stela.

In February 1883 I again arrived at the ruins, this time more fully equipped for the work. My companions were Mr. Charles Blockley, a young surveyor from Belize, Mr. L. Giuntini, from London, and the brothers Lopez, who had brought with them twenty Indian labourers from the Vera Paz.

We commenced work early in February, which is considered to be the beginning of the dry season, but, unluckily for our comfort, the rains continued throughout the month and our work was carried on under the greatest difficulties. Excavations became filled with water as soon as they were made, and no moulding could be done

until a water-tight roof had been made over the monument which was to be moulded. At one time the flood-water covered all but a few feet of ground on which our palm-leaf shanty had been built; everything in camp turned green with mould and mildew, snakes and scorpions became very troublesome, and mosquitos were a continual torment. Worst of all, the sick-list increased daily until twelve of the Indians were down with fever at the same time, and all the sound ones ran away to their homes.

I had then to undertake a long journey to the Vera Paz, and after a tedious search was able to engage and bring back with me another company of labourers. Towards the end of March the weather became hot and dry, and after my return to the ruins we were able to work on without interruption until the end of the first week in May. By that time I had secured a complete set of photographs of the monuments, Mr. Giuntini, who had worked on steadily during my absence, had finished a plaster mould of the Great Turtle (a mould which numbered over six hundred pieces, and had consumed nearly two tons of plaster), and he had also moulded the most interesting portions of two other monuments; and with the aid of my half-caste companions I had made a paper mould of every inscription in hieroglyphics or picture-writing which we could find in the ruins.

Before the last of our carefully packed cargoes of paper-moulds had reached the port tremendous thunderstorms accompanied by heavy showers of rain were of daily occurrence, and the mountain-track had again become an alternation of mud-hole and watercourse, but fortunately the moulds escaped damage.

My next visit to Quirigua was in company with my wife, in the year 1894.

We had passed the winter in travelling through Guatemala, and after camping for a month at the ruins of Copan arrived at the village of Quirigua on the 30th March. We found the place almost deserted, the villagers having formed a new settlement on the banks of the Motagua, about three quarters of a mile distant from the ruins.

On our way from the old to the new settlement we crossed the graded track of the railroad from Puerto Barrios to the capital. The rails had not yet been laid, but the line is now, I believe, open for traffic as far as Zacapa. During the next fortnight we lived in a small rancho on the outskirts of the new settlement, which had been put up for our accommodation by Mr. Price (my companion at Palenque), who had come over from Belize early in March to see to the clearing away of the dense vegetation which again hid the monuments from sight.

I had brought with me from England drawings of the inscriptions made by Mr. E. Lambert and Miss Annie Hunter from the plaster casts in the South Kensington Museum, and most of my time was occupied in testing the accuracy of these drawings by comparing them with the original carvings. Mr. Price looked after the native workmen and laid out the lines for a careful survey of the site of the ruins, and Gorgonio Lopez was engaged in making paper moulds of some of the sculptured stelæ.

On the 14th of April my wife and I had to start for Livingston, in order to catch

the last steamer leaving for New Orleans before the summer quarantine regulations came into force. Mr. Price and Gorgonio accompanied us to Yzabal and then returned to the ruins to complete the survey and moulding; but within a day or two of their return both of them were taken so seriously ill with fever that all work had to be abandoned, and it was with some difficulty that they were able to reach the port. As soon as they had regained sufficient strength to travel, Gorgonio Lopez returned to the Vera Paz and Mr. Price took ship for England. My wife was also struck down with fever, but fortunately the malady did not develop until the day we landed in New Orleans and were within reach of medical aid.

Owing to the unavoidable absence of proper supervision the paper moulds from Copan and Quirigua were repacked carelessly at the Port of Yzabal, and they were nearly all destroyed by moisture during the voyage to England.

It is much to be regretted that Mr. Price was unable to complete the survey of the ruins, as he had already cleared away all the undergrowth, and had made a careful examination of the mounds and terraces, but it was on the very day that he had adjusted his theodolite and commenced the measurements that the fever struck him and the work had to be given up. The plan on Plate II. is therefore founded on Mr. Blockley's survey, with such corrections and additions as Mr. Price had already noted.

GENERAL DESCRIPTION OF THE SITE AND STRUCTURES.

(Plan on Plate II.)

The ruins stand on a level plain covered by dense forest, a little over half a mile distant from the left bank of the Motagua River. During the rainy season the site of the ruins must be subject to frequent inundations; flood watercourses could be traced in all directions, and even in the middle of the dry season the water did not entirely disappear from the pool shown in the north-west corner of the Plan.

The level of the ground appears to have been raised since the monuments were first placed in position, and it is now necessary to clear away soil, in some cases to the depth of two or three feet, in order to expose the lower part of the sculpture. From observations made during our excavations I am inclined to think that the whole site was once paved with undressed flat stones, probably collected from the river-bed, and that below this pavement was a thick layer of irregular rounded stones through which the rain-water could drain away quickly.

The principal structure on the north of the plan is a long and somewhat irregular mound with indications of terraces. It is composed of small rough stones, and no trace of regular masonry could be detected; but it seems probable that the slopes and

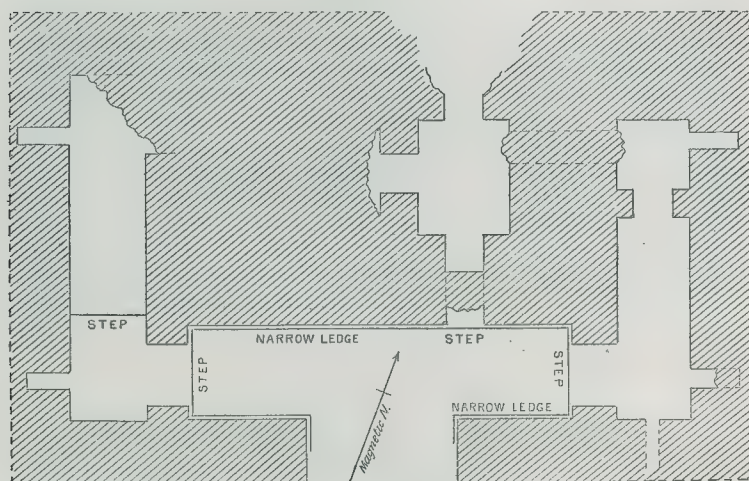
terraces were originally faced with cement, which has long since disappeared. The eastern border of the Great Plaza, which contained all the tall stelæ or idols, is formed by an irregular line of low mounds, which show no signs of having supported stone houses.

To the south of the Plan is a complicated group of mounds, terraces, and slopes of superior construction to those already mentioned.

To the north of the court of the Great Turtle stands what I should take to be the principal Temple mound, but its ruin is so complete that no trace of a temple can now be seen on its summit.

PARTLY EXCAVATED BUILDING ON THE NORTH SIDE OF THE SOUTH COURT.

Scale, 10 ft. = 1 inch.



During my visit to the ruins in the year 1883 I did not pay much attention to the structure of the mounds, but some years later, after having been so successful with excavations at Copan and elsewhere, I sent Gorgonio Lopez to Quirigua to see if he could find any traces of temples or houses by digging into the tops of the mounds. He reported that his excavations in what I have taken to be the principal temple mound did not give satisfactory results, for no trace of walls or chambers could be found. He was, however, more successful when digging into the mound on the north side of the south court, for here he unearthed the chambers of a house or temple still covered in some parts by a stone roof. The height of the walls to the

spring of the roof is about seven feet, the floor is in some parts still coated with cement, and there are traces of a stucco facing on the walls. Gorgonio was most fortunate in falling in with an American engineer, Mr. Walter Heston, who very kindly returned with him to the ruins and made a plan of the building, which was forwarded to me. The building was remeasured by Mr. Price in 1894, and the ground-plan is given on the preceding page.

There can be but little doubt that the mounds on the southern and western sides of the south court would well repay excavation.

The slopes and steps on the east and south sides of the court of the Great Turtle must have afforded the best examples of masonry at Quirigua; the stones are of large size and fairly well cut, but the structure has been hopelessly ruined by the penetrating roots of the forest trees, which have pierced every joint and forced the stones apart.

If the plans of Copan and Quirigua are placed side by side it will be seen that there is a striking similarity between the grouping and orientation of the structures, and this similarity extends to the position of the monuments so far that in both cases the bearded figures are found towards the north and the beardless figures to the south of the plans, nearer the main masses of masonry. These beardless figures are not necessarily those of women, as the dress and ornaments do not differ from those of the figures on the other monuments. Moreover, there is at Copan one monument, Stela H, which undoubtedly bears the figure of a woman clad in a woman's dress.

The abrupt termination of our examination of these structures at Quirigua in 1894 will always be a matter of regret to me. Now, however, that the railway runs so close to the site of the ruins, and that it is possible to superintend the work without a prolonged encampment on the low forest ground, I trust that some traveller may be tempted to complete the survey of the ruins. I feel sure that important discoveries will reward the work of excavating the larger mounds.


DESCRIPTION OF STELÆ AND MONOLITHIC ANIMALS.

A sample of the stone of the Great Turtle, examined in London, is described as "a breccia composed of felspar, mica, and quartz, very absorbant, and weighing about 130 lbs. to the cubic foot."

Much of the ornament on the stelæ at Quirigua is similar to that already described

when giving the account of the monuments at Copan. None of the faces of the principal stelæ are masked, as on Stelæ D and I at Copan, but, as has already been stated, the faces on the monuments to the north of the Great Plaza (monuments A to G) are bearded, and those to the south are beardless.

Feather-work (often in connection with the serpent-bird) is more freely used in the decoration of the head-dresses than it is at Copan, and it can be seen in perfection on Stela F.

The prevalence of the marks  in the foreheads of the grotesque faces is also noticeable.

In describing the monuments at Copan, I divided them for convenience into Stelæ and Altars. In some instances the Altars may have been properly so called, as they are flat-topped blocks of sculptured stone, standing in front of the upright stelæ, and form suitable tables on which to place offerings. In other cases, the so-called Altars do not stand immediately in front of the stelæ, and they are covered on the upper surface with hieroglyphic inscriptions, so that it is not probable that they were used as receptacles for offerings. At Quirigua the use of the word "Altar" as a term by which to describe the great blocks of stone sculptured into the forms of grotesque animals (such as B and G, Plate II.) would be still less appropriate than its use at Copan, and in the case of the Great Turtle (P), which is the largest of the series, the term would be altogether inadmissible, as the shape and height of the monument preclude the idea of its having been used as a receptacle for offerings. Although, in some papers already published, I have extended the term "Altar" to include these stone animals at Quirigua, they will here be classed as "monolithic animals."

STELA A. (Plates III. to VIII.)

Height 14 feet; breadth 4 feet 6 inches; thickness 3 feet 2 inches*.

This monument faces south and stands in line with the stelæ C and D in front of the mound which forms the northern boundary of the Great Plaza.

Owing to the decayed condition of the stone, the design on the pedestal which supports the figure is somewhat obscure both on the front and on the back of the monument; but in each case parts of the profile of a grotesque mask can be traced.

The full-faced figure on the front of the stela and its adornments is shown so clearly in the photograph (Plate IV.) that it needs little further description. The hands are

* As the monuments are irregular in shape the measurements are approximate, and nearer the mean than the extreme.

raised to grasp the breastplate; on each shoulder, over the cape, is a disk fringed with tassels and ornamented with a grotesque full face; this is an ornament found on almost all the figures of the Quirigua stelæ, and it can be seen most clearly on the south face of Stela F. A grotesque mask surmounts the head of the figure, and on either side of the scroll-work above this mask is a human face in profile, turned outwards. The heads at the ends of the breastplate appear to be snakes' heads with scroll-like tongues and no lower jaws. A long scroll-ornament, which seems to issue from the snake's mouth, hangs down to the feet of the figure (compare Plate XLV., *a*). There are apparently no ornamental bands or garters round the knee, and below the anklets the feet are bare.

The back of the stela (Plate VIII.) is considerably larger than the front, but unfortunately the carving is very much weather-worn. The principal figure appears to be half man, half jaguar; the feet are certainly jaguar's feet, and the hands are provided with claws. The face is shown in profile, turning towards the right shoulder, and there is some slight indication of a hafted axe in place of the pupil of the eye (compare Plate XLVI. Glyph No. 3, and Vol. IV. Plate XXXVII.), which usually indicates the numeral 6. On the other hand, the general appearance of the figure, face, and ornaments bears considerable resemblance to the figure-numeral 7 in the picture-glyph (no. 6) on the east side of Stela D (see Plate XXV. and page 10).

The left knee is bent, and the heel of the foot is raised from the ground. There are no garters below the knee. Each anklet is decorated with a grotesque face.

The sculpture on the upper part of the stone appears to me to represent a side view of the serpent-bird (compare Vol. IV. Plate LXXXI.), but the surface is much worn and the design is not easily followed.

MONOLITHIC ANIMAL B. (Plates III. and IX. to XV.)

Greatest length 13 feet 4 inches; width 11 feet; height 6 feet 3 inches.

This monument is lying on three large slabs of stone, which are well shown in Plates IX. and X. It is carved into the shape of a great dragon, with a human head, bust, and hands issuing from the dragon's mouth. In Plate XII., *a*, the two great eyes of the dragon, with hanging eyelashes and crossed bands over the eyeballs, can be clearly seen. The upper jaw is raised so that the row of incisor teeth shows above the grotesque mask which surmounts the human head.

On the left side of the monument (Plate IX.) both the arm and leg of the dragon can be seen. On both the upper arm and the forearm are two squares of picture-writing (Plate XIII., *a*); at the bend of the elbow is a scroll similar to that on the elbows and knees of the dragons at Copan and Palenque (see Vol. I. Plate LXXXV. and

Vol. IV. Plates XLIII. & LXVIII.). The hand is spread out towards the corner of the dragon's mouth. The thigh has one square of picture-writing on it (Plate XIV. No. 4), and the lower leg two squares (Plate XIV. Nos. 5 & 6), one of them almost completely destroyed. At the bend of the knee is a scroll similar to that on the elbow. The foot and recurved claw are well shown in Plate IX.

On the right side of the dragon (Plate XI.) a fault in the stone seems to have prevented the sculptor from showing the right leg, and a part of the position which it would naturally have occupied is covered with some curious and elaborate scroll-work (see Plate XII., *b*). The square of picture-writing placed above this scroll-work (Plate XIV. No. 13) matches the square of picture-writing on the left thigh. The left arm and hand match the right, the arm in each case being covered with picture-writing (Plate XIII., *a* and *b*).

The back of the dragon (Plate XII., *b*) is covered with scroll-work, now much weather-worn, and a broad band of six squares of picture-writing. Detail photographs and drawings of the picture-writing are given on Plates XIII. to XV., and the squares are numbered in what I believe to be the most probable sequence.

The drawing of this inscription has been a matter of the greatest difficulty, as the figures are so extraordinarily contorted and complicated. Without at present going into any further analysis of the inscription, it is desirable to point out that the figures in the squares numbered 4 and 5, representing the "chuen" and the "day," are both accompanied by figures with an open hand on the lower jaw, which indicates that there was "no count" of chuens or days, so that the figure which has been destroyed in the square number 6 must necessarily have represented the day Ahau.

STELA C. (Plates III. and XVI. to XX.)

Height 13 feet; breadth about 4 feet; thickness 2 feet 9 inches.

In size and general appearance this monument closely resembles Stela A. The principal differences are:—That four glyphs form a pedestal to the figures carved on the front and back of the monument instead of a grotesque mask. On the front of the monument (Plate XVI.) the two faces in profile near the top are grotesque instead of human faces. At the end of the breastplate are jaguars' heads instead of snakes' heads. The back of the monument (Plate XX.) is broader than the front. The heel of the right foot of the figure, instead of that of the left, is raised from the ground, and the feet and hands are those of a human being, and not those of a jaguar. There are no garters and the feet are bare. The anklets are similar to those on Stela A. On the upper part of the monument the serpent-bird is rather more distinct than on Stela A.

STELA D. (Plates III. and XXI. to XXVI.)

Height 19 feet 6 inches; breadth at the base about 5 feet;
thickness 2 feet 10 inches.

The south face of this monument (Plate XXI.) is much damaged. The pedestal is in the form of a large grotesque head. Above this head stands a full-face figure holding in the left hand a tasselled shield with a grotesque full face on it, and grasping in the right hand what I shall term a "manikin sceptre." The stone is so much worn that the hand and sceptre are hardly distinguishable. Fig. *a*, on the opposite page, shows a clearer example of the sceptre restored from the north face of Stela E. On the top of the sceptre is a small grotesque figure with a winged scroll issuing from its forehead, above the head is an ornament supporting a plume of three feathers. The lower end of the shaft of the sceptre terminates in a serpent's head, with three feathers issuing from its mouth.

From the girdle hangs an apron similar to those on the Copan stelæ. The legs below the knee are bound with garters, to each of which is attached the usual ornament of a human head. The sandals are most elaborate, and are ornamented over the heel with a grotesque face, and over the instep with a large fringed boss.

The ornament of the head-dress is figured on the opposite page (Fig. *b*). The breast-ornament of the small upper grotesque face will be seen to be repeated in the same position on the north face of Stela E and the south face of Stela F.

The north face of the monument (Plate XXII.) is slightly broader than the south face, and is much the same in design. The great grotesque head on the pedestal is furnished with scrolls, which apparently spring from the cheeks and spread over the ears; attached to each of these scrolls is a human head with the face turned upwards.

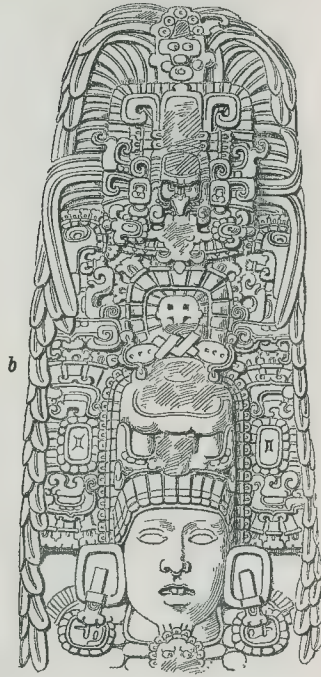
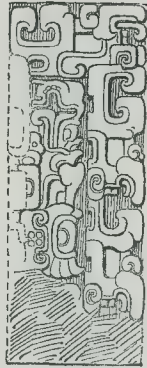
The tasselled shield is held in the right hand of the principal figure in such a position that only half of it is shown. The manikin sceptre in the left hand is held across the body with the face of the manikin turned downwards. The decoration of the head-dress is so clearly shown in the photograph that no description of it is necessary.

The inscription on each side of the Stela (Plates XXIII. to XXVI.) is headed by an initial series of six squares of picture-writing, the remainder of the inscription being in the usual hieroglyphic script.

The Initial Series of the inscription on the east side may, I think, be read as follows: (1) 9th Cycle; (2) 16th Katun; (3) 15th Ahau; (4) a full count of Chuens; (5) a full count of Days; (6) 7 Ahau, (11) 18 Pop (second half of glyph). On the west side: (1) 9th Cycle; (2) 16th Katun; (3) 13th Ahau; (4) 4th Chuen; (5) 17th Day; (6) 8 Caban, (11, second half of glyph) 5 Yaxkin.

On the east side the full count of chuens and days makes the reckoning fairly easy. On the west side the difficulty is greater; however, the figure-numeral attached to the

To face Page 10.



day sign in the 5th square of the picture-writing closely resembles the figure-numeral in the 6th square of pictures on the east side, which has been found to stand for 7, with this difference, that the head has a death's head lower jaw in place of the living lower jaw: this would raise the numeral by 10, so that it would represent the numeral 17; and as the count must commence on the day Ahau—and the 17th day after Ahau is Caban—the head in the cartouche in the 6th square must represent Caban. Any connection between this head and the usual sign for Caban is not at first evident, but a careful examination of the cast showed that the mark on the face had not been quite accurately drawn. As the lithograph had been printed before this discovery was made, a redrawing of the face and of the usual sign for Caban have been added in the margin of the Plate, and a comparison of the two will show how a trace of the Caban character is retained (compare also glyph 18, Plate XXXII.). The dates in both the Initial Series, as thus reckoned, will be found to agree with Mr. Goodman's Calendars.

STELA E. (Plates XXVII. to XXXII.)

Height 25 feet; breadth (south) 5 feet, (north) 4 feet 2 inches;
thickness 3 feet 3 inches.

This monument is leaning over at a very considerable angle, and the upper (south) face has suffered from exposure and from the continual dripping of water from the overshadowing trees. The north side, owing to the advantage of its sheltered position, is well preserved. As we wished to make a plaster mould of a considerable portion of this north face, it was necessary to test with care the stability of the monument. Finally, finding that six of us could stand on the top of the monument without shaking it, we judged that the base must be safely anchored in the ground, and that the added weight of the plaster would not be likely to bring it down on our heads.

As it would have been dangerous to dig away the earth round the base of the monument, we were not able to take a complete mould of the lower portion of the sculpture. The drawing on the preceding page (Fig. *c*) shows the design on the south face and part of the east and west sides of the pedestal. It represents a grotesque mask with the mouth open and the lower jaw hanging down. From this open mouth issues the head of a serpent-bird, whose wings pass through or beneath the lower jaw of the mask and spread out on either side. The design is further complicated by the two sides of the lower jaw and the scrolls on the sides of the mask being turned into secondary grotesque heads.

The portion of the grotesque mask or face which appears above ground on the north side of the monument is clearly shown on Plate XXVIII., *a*. The scrolls which

apparently spring from the ears of this mask extend on to the sides of the pedestal, and a drawing of this ornament, so far as it can be traced, is given in the illustration (Fig. *d*). It consists of a string of grotesque faces somewhat similar to that on the cornice of the sanctuary of the Temple of the Sun at Palenque (see Plate LXXXV. Vol. IV.), but in this case the string of faces seems to be doubled back on itself.

From the head-dress of the principal figure downwards, the general design on the north and south faces of the monument may be said to be the same. In each case, a manikin sceptre is grasped in the right hand, and a tasselled shield in the left hand. The head-dresses of the figures, however, differ considerably. On the south face (Plate XXVII.) the head is surmounted by two grotesque masks, above which appear the head, arms, and hands of another figure. On the north face (Plate XXVIII.) the head-dress consists of a single grotesque mask, above which, surrounded by scrolls and other ornaments, is another grotesque mask of a somewhat different form, with a breast-ornament similar to that on the upper grotesque face on the south side of Stela D.

The head of the principal figure on the north face of the monument is the best preserved of any found on the monuments either of Copan or Quirigua. However, when Mr. Giuntini began to take a mould of it, he found that there was a crack right across the base of the nose, and when he touched the nose it fell off into his hand. The crack was evidently an old one, as the interior surfaces were discoloured, and the nose had been adhering by a piece as big as a thumb-nail, which showed a new and clean fracture. The nose was carefully replaced until the moulding was finished, and then, as there was no one to whose care it could be entrusted, we compounded a cement and stuck it on again, leaving a rope tied round the monument to keep it in place. I am glad to say that on returning to the ruins eleven years later I found that our impromptu cement had proved efficacious, and, although the rope had rotted away, the nose was safely in its place.

STELA F. (Plates XXXIII. to XL.)

Height 24 feet; breadth 4 feet 5 inches; thickness 3 feet.

This is the most graceful and most elaborately decorated of all the Quirigua stelæ. A drawing of both the north and south face of the monument is given on Plate XXXVI. In each case the ornament extends from the face round the sides of the monument, and as the complete design could not otherwise be shown, the drawing has been made as though the whole of the ornament were carved on one flat surface only.

South face: on the pedestal is a large grotesque head or mask, and above it is the upper part of a human figure with hands raised and the palms turned outwards;

above this human head is a grotesque mask with the wing of a serpent-bird on either side of it.

The human figure standing on this pedestal has the hands raised to grasp the breastplate (as in Stelæ A and C), the thumb of each hand resting on the tasselled shoulder-ornament. Round the upper arm is a band bearing a tasselled ornament similar to that on the shoulder, but decorated with a human instead of a grotesque full face. The head-dress is very elaborate. The head is surmounted by two grotesque masks bordered on each side by a chain-like band which will be referred to later. Outside this band is the frequently occurring plaited ornament with the wing of the serpent-bird above and below (the upper wings reversed). Above the two grotesque masks is a third grotesque head, which in this case appears to be that of the serpent-bird with wings extended on either side of it, and probably the tail-feathers spread out above: the ornament on its breast is like that already noted in a similar position on the south of Stela D and the north of Stela E. From under the ends of this breast-ornament of the serpent-bird hang the two chain-like bands already mentioned; they pass behind the ears and under the hands of the principal figure, and hang down as far as the lower band of the girdle, where each ends in a grotesque snake's head without a lower jaw*. In place of the lower jaw is an ornament marked with two cross-hatched disks, and from it a plaited band with disks and tassels hangs down to the sandal. Near the top of the monument is a fourth grotesque head or mask with serpents' heads on either side of it.

The north face:—On the base of the pedestal is a large death's head, and above it is a human head and bust with the hands placed over the breast-ornament and a head-dress similar to that in the same position on the south pedestal. The right hand of the principal figure is grasping a manikin sceptre, and the left hand is covered by a tasselled shield. The tasselled disk upon the band round the arm (seen best on Plate XXXIX., *b*) is ornamented with a glyph. The head-dress is much the same as that on the north side, with the exception that the band, which comes from under the ends of the breast-ornament of what I take to be the serpent-bird, is quite short and ends in a grotesque head, shown in profile, just above the ears of the principal figure. Standing on the top of this head is a small human figure (with a grotesque head) with one arm passed round the band which it grasps in its hand.

The graceful arrangement of the feather-work on the upper part of this monument is well worthy of notice.

* The small human face which on Plate XXXIII. shows beneath the elbow of the principal figure is one of the three faces which are so often found attached to the girdle, and does not, as appears at first sight, issue from the open mouth of the snake.

MONOLITHIC ANIMAL G. (Plates XII. to XLIV.)

Length 14 feet 6 inches; breadth 8 feet 7 inches; height in front 4 feet.

This monument is lying on a foundation of three flat stone slabs. For want of a better name my companions in camp were accustomed to call this monument "the armadillo." The arms and legs of the animal portrayed are in much the same position as those on the dragon B, but there are no scrolls on the elbows and knees such as are always found on the dragons. The wrists and ankles are adorned with bracelets and anklets, and the skin is plated with flattened disks or scales. From between the half-open jaws issues a human head, which is much weather-worn. In place of the tail is another human head and bust with hands resting on the shoulders (see Plate XLIII.). The back of the animal is covered with scroll-work. An inscription is carved on both sides of the monument, which, so far as its worn condition allows, has been copied on Plate XLIV.

STELA H. (Plate XLV., a.)

Height 17 feet; breadth 4 feet 4 inches; thickness 3 feet.

This monument has fallen, and was found almost buried in the ground. On the front of the pedestal is a large grotesque face, and on the side is a small human figure seated cross-legged in a serpent's head scroll. The figure on the upper side of the monument is beardless; there are sandals on the feet; the hands are held up to the chest, which is covered by a long bar-shaped breastplate, with a serpent's head at either end, from which issues the upper part of a grotesque-faced figure with a spear in one hand and a shield in the other (this figure can be seen in the photograph). The head of the principal figure is surmounted by a grotesque mask, above which is a prominent canopy of feathers. The carving is in rather high relief and much weather-worn. The large decorated scroll which occupies the greater part of the side of the monument seems to issue from the serpent's head at the end of the breast-plate (compare similar scrolls on Stelæ A & C, and in Vol. IV. Palenque, Plates LXXI. and LXXV.). The other side of the monument, which is much damaged, appears to have been ornamented with a similar design. There is no inscription.

STELA I.

This monument has fallen, and the carving of the principal figure is very much damaged. There is a clear inscription on the back of the monument commencing with an "Initial Series," of which a mould was made in 1894 with much difficulty, as

we were not able to turn the monument over, and the inscription could be reached only by excavating beneath the stone.

Unfortunately this mould was one of those destroyed by damp during the voyage to England.

STELA J. (Plate XLV., *b* & *c*, and Plate XLVI.)

Height 16 feet 6 inches; breadth 4 feet; thickness 3 feet.

This monument lies fallen and broken. On the front is a beardless figure carved in high relief, very much weather-worn. A manikin sceptre was held almost upright in the right hand, and in the left hand is a tasselled shield. There are three grotesque masks above the head and another skull-shaped mask above them. Amongst the feather-work on the side of the head-dress is a fringed disk, to which is attached a double pendent ornament. On the field of the disk are three raised circles. Above the disk is a grotesque serpent's head with a curiously shaped ornament issuing from its widely opened mouth. On the back of the monument and on the lower half of each of the sides is the well-preserved inscription drawn on Plate XLVI. The "heading" of the inscription, which extends over the four columns of glyphs, has been reduced in size and placed on the left side of the Plate. In the Initial Series the face-numerals and signs for time-periods are separated into two columns, so that the day-sign falls in the twelfth instead of the sixth place.

STELA K. (Plates XLVII. to XLIX., *a*.)

Height 11 feet 5 inches; breadth 4 feet 7 inches; thickness 3 feet 10 inches.

This monument faces nearly east and west. When first found in 1883 about three feet of the sculpture was buried in the ground. There is no carved pedestal. From the squat shape of the human figure it was always known to us as "The Dwarf." There is nothing in the dress or ornaments which has not been already described. The feather canopy on the west face is rather more prominent than usual. On the east face the ornament is somewhat damaged and weather-worn. The human face is very well preserved, and is remarkable for the full and rounded features. The long bar breastplate is grasped by the hands: unfortunately, the serpents' heads at the end of the breastplate are almost broken away; but a small grotesque head, similar to that on Stela H, can be traced issuing from the serpent's mouth, and a decorated scroll, a copy in miniature of that which is seen so clearly on Stela H, can also be made out, part of it being carved in very low relief along the margin of the inscription on the sides of the monument.

CIRCULAR ALTAR L. (Plate XLIX., *b*, and Plate L., *a* and *b*.)

Diameter 3 feet 4 inches.

This stone has probably been moved from its original position. It is carved on one face only and is much weather-worn. The glyphs which almost surround the seated figure have an archaic appearance and are not easy to identify.

ALLIGATOR'S HEAD M. (Plate L.)

Length about 4 feet.

This stone also has probably been moved from its original position. As the inscription extends over the back of the head it does not appear probable that the head was ever attached to a body, and the monument must be regarded as complete in itself.

MONUMENT N. (Plate LI.)

This monument, when first seen in 1883, was almost entirely covered by a tree, as shown in the photograph. When the tree was cut down, the stone was found to be broken in two and much mutilated. I regret that I have no detailed description of this monument among my notes, but the general character of the design is shown in the photograph.

MONOLITHIC ANIMAL O. (Plate LII.)

This monument was even more completely covered by the stem of a huge tree than that last described, and only small portions of the carved stone could be detected between the great buttress roots (see Plate LII., *a*). In 1883 we were not able to free the monument entirely from the roots which encased it, and the photograph (Plate LII., *c*) was taken eleven years later when the wood had decayed. In the meantime much of the carved surface of the stone, which had been cracked by the pressure of the tree's growth, had crumbled away.

In design it bears some resemblance to that of a double-headed dragon; the principal head, that facing south, is surrounded with a hieroglyphic inscription

arranged in somewhat the same manner as that on the great Turtle (see Plate LIII., *b*). The limbs are furnished with scrolls on the elbows and knees, similar to those on the double-headed dragons; the armoured covering of the limbs is fashioned into a number of grotesque masks.

The head facing the north has no inscription round it.

A drawing of the first ten glyphs of the inscription is given on Plate LII., *d*, unfortunately the remainder is much defaced.

MONOLITHIC ANIMAL P. (Plates LIII. to LXIV.)

THE GREAT TURTLE.

Height 7 ft. 3 in.; length 9 ft. 8 in.; breadth 11 ft. 6 in.; girth 34 ft.

This great monument, which must weigh nearly twenty tons, stands, like the other monolithic animals, on a foundation of three large flat stones, which are not visible in the photographs. When first found it presented a most enigmatical appearance, for it was not until the earth had been dug away around the base that the great hands or flippers could be seen, which proved the main design to be the representation of a great turtle. The head of the animal, which faces nearly south, is surrounded by a hieroglyphic inscription.

Above the head and in the middle of the inscription is an opening surrounded by a scroll-border, from which peers the head of a small human figure, with hands resting on the border. Above the inscription are some grotesque heads and an arrangement of featherwork ornamented with discs.

The inscription extends over the front of each forearm, and on the outside of each arm there are three cartouches containing glyphs, and a fourth cartouche can be seen on the turn of the wrist below the elaborate bracelet. The drawing of this inscription is given on Plate LIX. and that of the bracelets and anklets on Plate LXIV. The hind legs are not easily made out, but on Plate LVI. a small part of the left leg can be seen above the ankle.

Beyond the fact that the general shape of the monument can be compared to that of a great carapace, the likeness to a turtle here ceases, the remainder of the surface of the stone being decorated with a bewildering maze of ornament in which huge serpents' heads appear to be the leading features.


The upper surface of the monument is shaped into a gigantic grotesque face (Plate LVIII., *b*) with huge square eyes half covered with eyelashes, and with the pupils marked by a glyph, which is repeated several times on the upper surface of the monument.

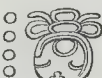

The snout extends to the south edge (above the Turtle's head), and on either side of this snout three incisor teeth are visible. Above the eyes, on either side of an Ahau sign, are two large curved teeth and indications of smaller teeth beside them, as though to show that the huge face would have been repeated again had there been room for it.

On each side of the monument the two leading designs are the upper part of a huge serpent's head and a human head in profile, hanging forehead downwards with elaborate scrolls attached to it. These are figured respectively on Plates LX. and LXI. The serpents' heads are so closely overlaid with minor ornaments that it is at first difficult to make them out. However, taking the large eye as the centre, it is possible to trace the line of the jaw, the great teeth, the curve over the nose, and other familiar features.

The nose is turned upwards, and is formed of a repetition of smaller serpents' heads (see the small sketch on Plate LX.), which extend along the base of the monument and are somewhat difficult to follow.

All the plain surfaces are occupied by small grotesque figures which baffle description, and must be studied in the photographs and drawings. Five of the smaller figures (three on the sides and two on the north face of the monument) grasp in their hands

cartouches marked thus: .

The figure over the nose-curl of the serpent on the west side holds in his hand this glyph , and that on the east side holds this .

The human heads in profile figured on Plate LXI. have wavy hair. The scroll-work attached to each head must be examined in the photographs and drawings, as it is hardly possible to describe it in words.

The north face of the monument (Plate LVII.) is in the form of a serpent's or dragon's head with a human figure seated cross-legged within its widely-opened jaws (compare the dragon's head on the Temple of the Cross at Palenque, Vol. IV. Plate LXVIII.). The curls at the corners of the mouth are ornamented with grotesque figures (see Plate LXIV.) grasping the cartouch already mentioned.

The plain surfaces are decorated with cartouches containing figures or groups of glyphs which are drawn separately on Plate LXIII.

Over the top of the upturned jaw of the dragon is an ornamental band (which appears to pass under the head-dress of the seated figure) decorated with four grotesque masks. This band is clearly shown in the drawing, Plate LVIII., *c*. From this band an ornamental scroll marked with a cross-bar pattern extends towards the top and over the

sides of the monument; it can be seen in Plate LVIII., *b*, and is figured separately on Plate LXIV.

There remains to be noticed the figure seated crossed-legged within the dragon's jaws. The dress and ornaments on the body present no new features. A manikin sceptre is grasped in the right hand and a tasselled shield in the left. The head-dress is most elaborate. Immediately above the head is a grotesque mask with an unusual and conspicuous forehead-mark, and the wing of a serpent bird on either side of it. The nose of the serpent's head belonging to this wing is covered with something that looks like a glyph.

Above the grotesque mask are the head and hands of a small human figure, also issuing from the open jaw of a dragon or serpent. From the mouth of this human head issues a scroll connected with a band, which, after passing across the forehead-mark of the grotesque mask below, is grasped by the hands of the figure and then hangs down on each side over the wing of the serpent-bird, taking on the way the form of an elongated serpent's head, and ending on one side in a flower and on the other in a conventional scroll-ornament. It seems probable that this human head and the band hanging from its mouth have some connection with the head and water-plant figured in Vol. IV. Plate XCIII.

Above the hands of the small human figure, and on either side of its head, is another dragon's or serpent's head, whose snout ends in another grotesque head surmounted by a bold scroll.

In the middle line, above the small human head, is a grotesque head decorated with scroll-ornaments.

PLATE LXV. gives the Initial series or dates on the Monuments in a tabulated form.

The Picture-writing series on Monuments B and D are not included.

PLATE LXVI. gives a view of our camp and my assistants, taken in the year 1883.

RUINS OF IXKUN*.

(PLATES LXVII.-LXIX.)

THE ruins of Ixkun are situated in the forest country of the Province of Peten in (approximately) lat. $16^{\circ} 35' N.$, and long. $89^{\circ} 34' W.$, about six miles from the village of Dolores †.

I reached Dolores in March 1887, after a rough journey through the forest from Cajabon; and although I had been told about Ixkun some years before by the Jefe Politico of Peten, I was surprised to find that very few of the villagers knew of the existence of the ruins, and it was some time before anyone could be found to guide me to the site.

The small plain on which the ruins stand is almost surrounded by low rough limestone hills, and although the forest is too thick to enable one to speak with anything like certainty, I do not think the buildings extend beyond the area of the plain. The plan of the ruins is given on Plate LXVII. It could not have been a town of very great importance, as the buildings are small and the masonry is of an inferior class, but the sculptured monoliths and hieroglyphic inscriptions show that it must have belonged to a good period.

The foundations on which the buildings were raised vary in height from 5 to 50 feet, and are composed of rough irregular blocks and slabs of soft limestone; the interstices were probably filled up with mud, and the surface faced with cement, but the cement facing has almost entirely disappeared, and the mud has been washed out by tropical rains, so that now the foundations present the appearance of rough heaps of unworked stone. At the south end of the plain is a natural hill which has been partly terraced, and was probably ascended on the north side by a stone stairway; on the top of it are two foundations supporting the remains of stone houses. From the foot of this hill a sort of roadway, with the remains of a low wall on either side, runs to the principal group of buildings, and is continued on the other side of it to a low hill on which the remains of a few other buildings were found.

I made an excavation on the summit of the mound marked X in the plan, that disclosed the remains of a house or temple, of which a ground-plan is given. Only two walls could be found, but there was almost certainly an outer chamber, which is

* Some of the following descriptions have already been printed in 'A Glimpse at Guatemala,' published by John Murray, 1899.

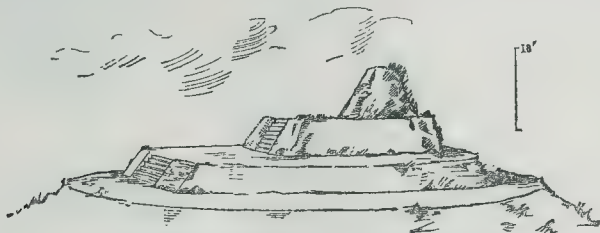
† By an unfortunate oversight the ruins of Ixkun are placed in the map (Plate I. Vol. II.) about twelve miles too far towards the N.N.W.

shown in dotted lines. Near the middle doorway a rough unworked slab of stone was lying, which had probably served as a lintel. The doorway in the back wall had been blocked up after the house was built. The walls still standing are about five feet high, and, from the position of the stone lintel above the blocked-up doorway, I should estimate the original height of the walls at a little over six feet. The cement floor of the house is still in fair condition, and there are traces of a cement-covered platform which ran round the outside of it. Some fragments of rough pottery were found inside the house. No roofing-stones of the type used in Copan, Tikál, and the other great ruins could be found, and I am inclined to think that the very narrow chambers were roofed with flat slabs, and some slabs which would have answered the purpose were found among the debris. There are several carved monoliths which formerly stood on the level ground in front of the buildings, but most of them are overturned and partly destroyed. The only one in a good state of preservation is marked * in the Plan. It is an upright stone measuring 12 feet 6 inches in height, 5 feet 10 inches in breadth, and about 1 foot 6 inches in thickness. It is carved on the east side only (see Plates LXVIII. & LXIX.). A circular disk-like stone about 12 feet in diameter is lying in front of the monument.

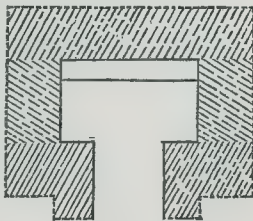
The carving on the monument represents two Maya priests or chieftains, with elaborate head-dresses and ornaments, standing facing each other above a hieroglyphic inscription, which commences with what I have called an "Initial Sequence," which Mr. Goodman has proved to be a date. In the lower panels are two unadorned crouching human figures, with their necks and arms bound with ropes, evidently meant to represent prisoners trodden under foot by the two gorgeously arrayed figures standing above them. The marked difference in physiognomy between the Mayas and their captives is clearly shown, and this monument may celebrate the conquest of the aboriginal inhabitants of the land or the defeat of some of those barbarous invaders from the north whom some writers believe to have finally caused the overthrow of the Maya civilization. It is also worth noting that the Mayas carry only ornamented staves in their hands and make no show of weapons of war. In one of the other partly destroyed monuments a figure is represented carrying in his hand one of the "manikin sceptres," of which so many examples occur on the sculptures at Quirigua.

RUINS NEAR YAXCHÉ.

A FEW miles to the north of Ixkun the forest gives way to an open savanna country studded with innumerable low, timber-covered hills, and here, about two miles to the N.W. of the little hamlet of Yaxché, on the thickly wooded banks of a streamlet which runs to join the Rio San Juan, we found a ruined town of considerable size. As no signs of sculptured stones could be discovered among the foundation-mounds, we did not attempt to clear away the thick undergrowth, but turned our attention to two conical hills of natural formation standing up conspicuously about eight hundred yards apart on either side of the stream. Both hills were overgrown with grass, and each was crowned with a mound which we thought must contain the remains of a building. We set to work to dig into the mound on the summit of the southern hill,



and, as we expected, unearthed the remains of a small building facing north. The walls were in some parts perfect to the height of six feet, and they appear to have been built separately (as indicated by the shading in the Plan). The entrance-passage and interior of the chamber were lined with small well-wrought blocks of stone, but the material is so soft that it could easily be cut with a knife. The floor had a covering of cement, which was in good condition, and the outside of the walls appear to have had a thick coating of the same material. A stone lintel and a few slabs, which may have been used for roofing, and some fragments of rough pottery were met with in digging out the debris. Along the back of the chamber was a raised bench about two feet high, and in the face of it was a niche about twenty inches by eighteen, which was much smoke-stained and had probably been used for burning offerings of copal. We also dug into the mound on the summit of the

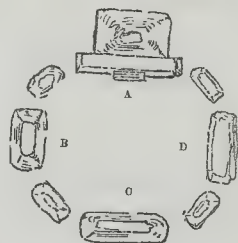


1 in. = 8 ft.

PLAN OF TEMPLE.

northern hill, and with some difficulty were able to trace the walls of a building which must have closely resembled its companion facing it on the opposite side of the valley. On the broken floor of the chamber we discovered portions of three earthen pots and some fragments of a good-sized stucco figure. We were able to piece together two fragments of a well-modelled face, which must have been about ten inches in breadth, and to ascertain that the eyes had been made of obsidian.

Almost all round the ruined town there are numberless limestone hills between fifty and three hundred feet in height, and at the top of nearly every one of them are foundation-mounds or tumuli. In some cases these foundations are merely outlined in rough stones, in others they are flat oblong mounds, which may have supported buildings of a perishable material. A common arrangement of the remains on these hilltops is given in the accompanying sketch. I opened one set thus arranged. The mound A had probably supported a small "cue" or shrine; a terrace ran in front of it, which was reached by a short flight of steps. The total height of the mound was about sixteen feet, and the level space on the top of it did not measure more than six feet by four. We dug a trench right through this mound, and found traces of interments and broken pottery within a few feet of the top, and below this nothing but a mass of rough stones and earth. B, C, and D may have been the foundations of small houses, but they also served as places of sepulture, as we found in them traces of bones and broken pottery. The four smaller mounds were tombs only. The vessels buried with the bodies appear to have consisted of a flat dish and a round pot. The body was probably seated with its knees doubled up, for we found the fragments of bones all close together, and portions of the skull in the midst of them. In one instance the skull, or rather the earthen impression of it, was actually resting in the dish and the bones lying around it, as though the body had been seated in the dish, and as the skeleton had decayed the skull had sunk down through them. We found three or four chipped stone lance-heads, a good deal of unworked flint, but only two obsidian flakes. There were also a few pieces of mealing-stones and a considerable number of potsherds showing traces of yellow and black and red colouring. A little trickling stream at the foot of the hills had evidently formed part of the water-supply of the ancient inhabitants, for it was enclosed by a wall forming an irregular oval about twenty-five by forty feet. On the level ground



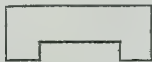
between the hills we found several round holes about eighteen inches in diameter, faced with plaster or stone, forming the mouths of small underground chambers, which may have been intended for storage, or possibly were used for vapour-baths.

RUINS NEAR RABINAL.

(PLATES LXX. & LXXI.)

THE two towns of Cubulco and Rabinal in the province of the Baja Vera Paz are situated about twelve miles apart at either end of a plain surrounded by high ranges of hills. Lower hills run out into the plain from north and south, and almost divide it in two near the middle, and spurs of the high range and partly detached hills jut out into the plain from all sides. Many of these lower hill-tops are the sites of ancient Indian buildings, and on one of them, to the north of the town of Rabinal, the ruins are visible from the town itself. I rode through this valley in 1887, but unfortunately was able to devote one day only to the examination of the Indian remains. I chose as the object of my excursion a group of ruined buildings almost equidistant from Rabinal and Cubulco.

A spur of the bare rocky foothills, rising to over one thousand feet in height, here juts out into the plain from the main northern range, and for about three quarters of a mile along its top ridge stands the ruins of an Indian town. A rough sketch of the position of the groups of buildings is given on Plate LXX. At the narrow neck where the spur leaves the main range there are the remains of two curved walls about fifty yards apart, which were no doubt used for defensive purposes. Outside these walls towards the main range there is one group of buildings marked A. On leaving this group and crossing the walls to follow the ridge towards the south, the top and slopes of the hill, for about one hundred feet down on either side, are seen to be covered with the small terraced foundations which may have supported very small houses built of some perishable material, or may possibly be the sites of burial-places. These terraces, some of which can be seen on Plate LXXI., *a*, are sometimes oblong, measuring 20-30 feet in length by 6-7 feet in width; but more often they are of this shape:—



and they stand out from the hill thus:—



Along the ridge of the hill there are seven separate groups of what must have been

public buildings, each group arranged on nearly the same plan so as to enclose a level plaza. It seems to me most probable that here we have an example of the villages "of not more than six houses, standing a gunshot apart," mentioned by Las Casas, and that it was the inhabitants of the houses on these hill-tops whom he had so much difficulty in persuading to leave their homes and form the settlement at Rabinal.

The general arrangement of the buildings in each group is as follows:—One large house extends right across the hill-top bounding the northern side of the Plaza: this house faces the south, and as there are no openings in the back wall, the access to the Plaza from the north must have been just on the fall of the hill at each end of the house. Numerous doorways opened on to a flight of stone steps on the south side. A house similar in plan, but somewhat smaller, stood on the southern side of the Plaza and faced north, and there were usually the remains of some smaller houses facing inwards on the east and west sides of the Plazas. Almost equidistant between the north and south houses, in the centre of each Plaza, stood what I take to be the remains of a temple, facing northwards, and between this and the northern house stood an altar which was apparently a copy in miniature of the foundation of the temple. On Plate LXXI. is given a view of one of the groups of buildings and a photograph of a temple.

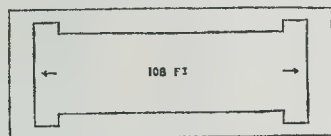
I took some measurements of the buildings in the group marked E on the top of the western spur. The arrangement differed somewhat from that of the other groups, the Plaza being double and there being no houses along the sides, or it may be that the houses were small and that all trace of them has been swept away. The house No. 1 (see plan, Group E) was by far the largest, measuring 156 feet 7 inches in length and 21 feet 6 inches in breadth. It was approached by a flight of steps divided into six divisions by projecting buttresses. Eight masonry piers supported the roof in front, the wall being continuous at the sides and back of the house. The wall is still standing in some parts to the height of 6 feet. A raised bench 6 feet 6 inches in width runs along the back and sides of the house. Such a building must necessarily have been roofed with wood; and I may add that nowhere did I find any traces of stones which could have been used for purposes of roofing.

A ground-plan and elevation of the building, which I take to be a temple, is also given on Plate LXX. Two stairways with very narrow steps rise between buttresses on both north and south sides of the building and a single stairway on the east and west; but the approach is from the north side only, and the platform round the temple on the other three sides is little more than a foot wide. The height of this platform from the ground is 10 feet 10 inches. The temple has three doorways on the north side, and the walls are still standing to the height of 5 feet. All the temples face north except No. 2 in Group E, which faced towards the south. The temples are all built on the same plan, but differ in size, some being considerably larger than that here figured.

The altars were apparently miniature copies of the foundations of the temples, with steps only 3 or 4 inches in height and width; but no trace of a miniature house could be seen on the top of them. The masonry is all of the same description: irregular flat stones 2 to 5 inches thick and straight at one edge, placed one over another and faced with plaster. The stones may have been found already apart from each other, or may have been flaked off from the rock with little trouble, and have needed little dressing. The thick plaster coating is in some places still perfectly preserved.

From the position chosen, and from the fact that the buildings face inwards, it seems probable that each group may have formed a sort of fortress.

In one of the Plazas I found the remains of a building, of which a rough ground-plan is here given:—



It is an oblong enclosure with walls 10 feet thick, with recesses at the four corners. The walls are in some parts perfect to the height of 7 feet. I could not find that there had been originally any doorway to this enclosure, but two entrances have been forced in where the walls are narrowest. It agrees in plan and dimensions with the building figured in Bancroft's 'Native Races of the Pacific States,' as a type of Tlatchtli courts of Mexico, where a game (which is described by Herrera and others) was played with an indiarubber ball.

There were numbers of Chaya (obsidian) flakes lying about on the surface of the ground, and I found one chipped arrow-head, one stone axe, and several pieces of stone axes and of mealing-stones.

An examination of the ruins of the neighbouring hill-tops would doubtless add much to our knowledge, and there still remains as a field for enquiry the whole of the forest-covered range of the Sierra de las Minas, which has not as yet been touched by the archæologist, and must almost certainly contain interesting ruins. The assertion is not mere guess-work, but is based on the fact that similar ruins are known to exist on the hills above San Gerónimo, and that I believe I gained touch of the same style of building at the ruins of Chacujal on the south side of the valley of the Polochic, which was a flourishing town when Cortés visited it in the year 1525; it is not probable that the country between these sites was left uninhabited.

CHACUJÁL.

DURING the years 1524-25 Cortés made his wonderful march from Mexico to Honduras, forcing his way through the swamps of the Tabasco delta and crossing the base of the peninsula of Yucatan. It was not until he arrived at the mouth of the Rio Dulce on the Atlantic coast of Guatemala that he got into touch with the Spaniards of whom he had come in search. The first of his countrymen whom he met with were forty men and twenty women belonging to the party under the command of Gil Gonzales de Avila. These unfortunate people were even in a more pitiable condition than his own half-starved followers. Expeditions had at once to be despatched into the surrounding country in search of food, but they proved singularly unsuccessful until Cortés himself took the matter in hand. In a "brigantine" and boats belonging to Gonzales's men he set out with a party of forty Spaniards and fifty Indians, ascended the Rio Dulce, and landed on the south side of the great lake, probably somewhere to the east of the site of Yzabal. Leaving his boats in charge of a guard, Cortés and his followers pushed on during the next few days across the spurs of the Sierra de las Minas and crossed the innumerable streams which score the mountain sides, finding, as he says, the path so rough and steep that they had to make use of both hands and feet in climbing. Some villages were met with on the way, but at the approach of the Spaniards the natives fled to the forest, and the Spaniards found no stores of food—indeed, they barely obtained enough to supply their immediate wants.

In his letter to the King, Cortés writes:—"Having asked some of the Indian prisoners whether they knew of any other village in the vicinity where dry maize could be obtained they answered me that they knew of one called Chacujál, a very populous and ancient one, where all manner of provisions might be found in abundance."

The Spaniards reached the neighbourhood of this village at sunset, and Cortés made his arrangements to take it by surprise on the following morning. To quote his own words:—"I had laid down on some straw, in order to rest, when one of the scouts came to me, and said that by the road communicating with the village he saw a body of armed men coming down upon us; but that they marched without any order or precaution, speaking to each other, and as if they were ignorant of our being on their passage. I immediately summoned my men up, and made them arm themselves as quickly and noiselessly as they could; but as the distance between the village and the place where we had encamped was so short, before we were ready to meet them the Indians discovered the scouts, and letting fly on them a volley of their arrows began to retreat towards their village, fighting all the time with those of my men who were foremost. In this manner we entered the village mixed up with them; but the night being dark, the Indians suddenly disappeared in the streets, and we could find no enemies. Fearing some ambush, and suspecting that the people of the village

had been somehow informed of our arrival, I gave orders to my men to keep well together, and marching through the place, arrived at a great square, where they had their mosques and houses of worship; and as we saw the mosques and the buildings round them just in the manner and form of those of Culúa, we were more overawed and astonished than we had been hitherto, since nowhere since we left Aculan had we seen such signs of policy and power. . . . We passed that night on watch, and on the following morning sent out several parties of men to explore the village, which was well designed, the houses well built and close to each other. We found in them plenty of cotton, woven or raw, much linen of Indian manufacture and of the best kind, great quantities of dried maize, cacao, beans, peppers and salt, many fowls, and pheasants in cages, partridges, and dogs of the species they keep for eating, and which are very tasteful to the palate, and in short every variety of food in such abundance, that had our ship and boats been near at hand, we might easily have loaded enough of it to last us for many a day; but unfortunately we were twenty leagues off, had no means of carrying provisions except on the backs of men, and we were all of us in such a condition that, had we not refreshed ourselves a little at that place, and rested for some days, I doubt much whether we should have been able to return to our boats."

The Indians, however, did not return to their town, and Cortés was left in peace to build rafts on which to convey the grain he had captured, and after an adventurous passage down the Rio Polochic he rejoined the brigantine in the Golfo Dulce and carried the much-needed supplies to his half-starved companions.

In 1882, when camped at Quirigua, I sent one of my men up the Rio Polochic to make enquiries for the ruins of Chacujál, pointing out to him the localities in which the ruins were most likely to be found. On his return he told me that he could hear nothing whatever of any place named Chacujál, but that there was a ruin known as Pueblo Viejo on the Rio Tinaja, on the south side of the Polochic a few miles from Panzos. This situation answers so exactly to the requirements of the description given by Cortés that there can be little doubt that we had found the ruins of the town called by him Chacujál. In 1884 I was able to make a hurried visit to the ruins myself, and found a number of foundations surmounted by low walls and a buttressed temple mound, somewhat similar to those in the neighbourhood of Rabinal already described. I could find no trace of sculptured stones or inscriptions. As the whole site was covered with a dense jungle it was not possible to make any plan of the ruins during the few hours at my disposal; however, I saw quite enough to convince me that, although the plan of the town had been carefully laid out, the buildings were of no great importance and in no way comparable to those at Copan or Palenque. Yet this is the town which Cortés compares to Culúa in Mexico, and deems to be of greater importance than any town he had seen since leaving Acalá, a statement which goes far to prove that Cortés and his followers had met with none of the great centres of Maya art during their wonderful march.

I was not successful in connecting these ruins on the Rio Tinaja with the name of Chacujál, until one of my canoemen whom I was questioning on the subject, after repeating the name several times, exclaimed "Chaki-jal, that is what the Indians of these parts (the Quekchis) call the ripe corn"; and the origin of the name was at once evident.

UTATLAN AND IXIMCHÉ.

(PLATES LXXII. & LXXIII.)

At the time of Alvarado's entry into Guatemala in February 1524, the tableland round about the modern towns of Santa Cruz del Quiché and Quezaltenango was occupied by the Quiché Indians, who had their capital at Utatlan, close to Santa Cruz. The Cachiuels held the land to the east of the Quichés, and their capital, Patinamit or Iximché, stood near the modern town of Tecpan Guatemala, and is called by Alvarado the "City of Guatemala." The Tzutuhils, a less powerful tribe, appear to have held the land on the east and south shores of the lake of Atitlan, and probably had their headquarters on the site of the present Indian village of Atitlan. All three tribes spoke languages of (what is known as) the Maya-Quiché stock, a family of languages which extends over the whole peninsula of Yucatan, through the greater part of Guatemala, and parts of Tabasco and Chiapas. The confederation of these three tribes or nations—Quichés, Cachiuels, and Tzutuhils—is sometimes spoken of as the Quiché-Cachiquel Empire; but whether it was ever a united empire, as we understand the term, is somewhat doubtful, while it is quite certain that at the time of the Spanish invasion all three tribes were at enmity one with another.

It is sometimes assumed that these people had attained a high degree of civilization, and were especially advanced in the art of building; but this assumption I believe to be mainly due to the grossly exaggerated descriptions of their towns given by the early Spanish historians, and unfortunately there are no other written records to which we can refer on these points.

Of the three aboriginal MSS. still extant, not one (so far as I know) has been attributed to the Quichés or Cachiuels, and no carved inscriptions have been found amongst the ruins of their towns; but a few glyphs painted on pottery which is ascribed to them would lead one to suppose that they made use of the Maya script. Of late years two documents have been discovered which have gained for these people some literary reputation—the 'Popul-Vuh,' or sacred book of the Quichés, and the

'Chronicles' of the Cachiuels: the fact that they are written in Roman characters shows that the transcription at least is of recent date; but whilst they are of undoubted interest with regard to mythology and traditional history, they afford no guide to the then prevailing state of civilization.

After making due allowance for the inaccuracies of the available descriptions, it may undoubtedly be conceded that at the time of the Spanish conquest the Quichés and Cachiuels lived in organized communities and that they were fairly proficient in the arts, without attempting to exalt their culture to the same level with that of the builders of Palenque or Copan, or the great towns in Yucatan. For their history since the Spanish invasion we must turn to the earliest accounts of them left to us by their conquerors.

Alvarado left Mexico in December 1523, with an army of 120 horsemen, and 40 led horses, 300 infantry, of whom 130 were crossbowmen and arquebusiers, four pieces of artillery, and some thousands of picked Indian warriors. He passed over the Isthmus of Tehuantepec, and marched on through the province of Soconusco, fighting a battle near Tonalá, and on the 11th April he addressed a despatch from Utatlan to his great Captain Hernando Cortés, who was then in Mexico, as follows:—

"Señor, from Soconusco I wrote to your Highness all that had happened to me as far as that place, and said something of what I looked to find ahead of me. And after I had sent my messengers to this country to inform the people that I was coming to conquer and pacify certain provinces which were unwilling to place themselves under the dominion of His Majesty, I begged help and assistance from them as vassals (for as such they had offered themselves to your Highness begging favour and aid for their country) and said that if they gave their assistance in the way they ought to do as good and loyal vassals of His Majesty, they would be well treated by me and the Spaniards in my company; and if not, I would make war on them as against traitors rebelling and fighting against the dominion of our Lord the Emperor, and as such they would be treated, and in addition to this, that we would make slaves of all taken alive in the war. And having done all this and despatched the messengers, who were men of their own people, I reviewed all my people, both foot and horse, and the next day, on the morning of Saturday, I set out in search of their land, and after marching for three days through uninhabited forest, we pitched our camp, and the scouts whom I had sent out captured three spies from a town in this land named Zapotitlán. I asked them what they came for, and they told me that they were collecting honey, but it was notorious that they were spies. . . ."

Alvarado had so far been marching through the tropical forest on the Pacific slope; now that he wished to turn inland and reach the plateau he found the path barred by a great host of Indians. A battle was fought at Zapotitlán, and the victorious Spaniards rested for two days in that town. Then Alvarado led his army up the Cuesta de Santa Maria to the high land, and at the top of the pass, near the town of Xelahú or Quezaltenango, another great battle was fought with the Quiché warriors.

Again the Indians were defeated, and Alvarado entered the deserted town. In a short time his army was again on the march, and for a third and last time the despairing Indians offered battle; but, as usual, the Spaniards carried all before them, and the carnage amongst the Indians is described as fearful. The victorious army continued its march towards Utatlan, the capital of the Quichés; but Alvarado shall tell the tale in his own words:—

“And when the chiefs of this town found that their people were defeated they took counsel with all the land and called many other provinces to them and gave tribute to their enemies and induced them to join them, so that all might come together and kill us. And they agreed to send and tell us that they had wished to be friends, and that again they gave obedience to our Lord the Emperor, so that I should enter the city of Utatlan, where they afterwards brought me, thinking that I would camp there, and that when thus encamped, they would set fire to the town in the night and burn us all in it, without the possibility of resistance. And in truth their evil plan would have come to pass but that God our Lord did not see good that these infidels should be victorious over us, for this city is very strong, and there are only two ways of entering it, one over thirty steep stone steps, and the other by a causeway made by hand, some part of which was already cut away, so that that night they might finish cutting it, and no horse could then have escaped into the country. As the city is very closely built and the streets very narrow we could not have escaped suffocation or falling down headlong in fleeing from the fire. And as we rode up, and I could see how large the fort was, and that within it one could not avail oneself of the horsemen because the streets were so narrow and walled in, I determined at once to clear out of it on to the plain, although the chiefs of the town asked me not to do so, and invited me to seat myself and eat before I departed, so as to gain time to carry out their plans. But I knew the danger in which we were, and sent some men ahead of me to take possession of the causeway and bridge, so that I could get out on to the plain, and the causeway was already in such a condition that one could hardly get over it on horseback, and outside the city were many warriors, and as they saw me pass out on to the plain, they retreated somewhat, so that I did not receive much harm from them. Then I concealed my real intentions so that I might capture the chiefs who were taking to flight, and by the cunning with which I approached them, and through the present which I gave them the better to carry out my plan, I took them captive and held them prisoners in my camp. But, nevertheless, their people did not cease fighting against me in the neighbourhood and killed and wounded many Indians who had gone out to cut grass. And one Spaniard who was cutting grass a gunshot from the camp was slain by a stone rolled down the hill. This land is very full of gulleys, there are gulleys two hundred fathoms in depth, and on account of them one cannot carry on war and punish these people as they deserve. And seeing that by fire and sword I might bring these people to the service of his Majesty, I determined to burn

the chiefs, and they themselves said at the time that they wished to be burnt, as appears in their confessions (where they say that they were those who had declared and made the war against me and wished to burn me in the city; and it was with this intention that they brought me to the city, and that they had ordered their vassals not to come and give obedience to our Lord the Emperor, nor help us nor do anything else that was right). And as I knew them to have such a bad disposition towards the service of his Majesty, and to insure the good and peace of this land, I burnt them and sent to burn the town and to destroy it, for it is a very strong and dangerous place, that more resembles a robbers' stronghold than a city. And to enable me to hunt out those people I sent to the city of Guatemala, which is ten leagues distant from this place, and ordered them on the part of his Majesty to send me some warriors (and this I did so that I could find out what their disposition was, as well as to strike terror into the land), and they were well disposed towards me and agreed to do so, and sent me four thousand men, and with these men and those that were already with me, I made an expedition and overran the whole of the country. And seeing the damages which they had suffered they sent me messengers to tell me that now they wished to be good, and that if they had erred it had been at the order of their chiefs, and that whilst their chiefs had been living they dared not do otherwise, but as now their chiefs were dead they prayed me to pardon them, and I spared their lives, and ordered them to return to their houses and live as they had done formerly; and this they did, and at the present time I have them in the same condition as they were formerly, but at the service of his Majesty. And for greater security I chose out two sons of the chiefs, whom I placed in their fathers' position, and I believe that they will carry out faithfully all that tends to the service of his Majesty and the good of his lands. And as far as touches the war I have nothing more at present to relate, but that all the prisoners of war were branded and made slaves, of whom I gave his Majesty's fifth part to the treasurer Baltasar de Mendoza, which he sold by public auction, so that the payment to his Majesty should be secure.

"I would wish your Excellency to know that the country is healthy and the climate temperate, that there are many strong towns, and that this city is well built and wonderfully strong, and has much cornland and many people subject to it, the which, with all the subject towns and neighbourhoods, I have placed under the yoke and in the service of the royal crown of his Majesty."

Alvarado then marched to Iximché, or Guatemala, as he calls it, and was received in a most friendly manner by the Cachiuels: "we could not have been treated better in our fathers' houses," he writes to Cortés. After a few days' rest he joined his hosts in an expedition against the Tzutuhils, who were easily conquered.

Alvarado had now subdued two of the strong tribes of the country, and was in alliance with the third, so was free to continue his march; and after a most arduous journey and frequent collisions with other and less important Indian tribes he succeeded

in reaching Cuzcatlán, a town in what is now the Republic of Salvador. By the month of July he was back again in Iximché, and the ceremony then took place of founding there the city of Santiago as the capital of Guatemala, but before building was commenced a new site had been chosen for the capital at the foot of the Volcan de Agua and Iximché was abandoned.

Interesting as Alvarado's letters are in showing us his method of procedure in dealing with the Indians and the nature of the resistance he met with, they give us very little information about the natives themselves, the way in which they lived, or the culture to which they had attained. For these particulars it has been usual to rely upon later writings, and especially on the 'History of Guatemala,' written between 1808 and 1818 by Domingo Juarros, who, in his turn, relies for much of his information on the 'Recordacion Florida,' a manuscript account of the kingdom of Guatemala written, in 1690, by Francisco Antonio Fuentes y Guzman, and still preserved in the city of Guatemala.

The following description of Utatlan is taken from Baily's translation of Juarros:—

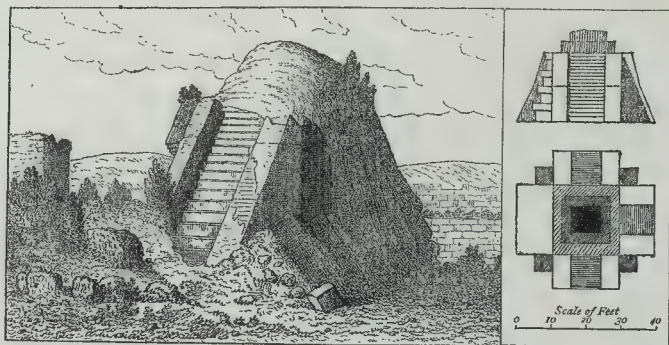
"The history of this place is singular, as it was once the large and opulent city of Utatlan, the court of the native kings of Quiché, and indubitably the most sumptuous that was discovered by the Spaniards in this country. That indefatigable writer Francisco de Fuentes, the historian, who went to Quiché for the purpose of collecting information, partly from the antiquities of the place, and partly from manuscripts, has given a tolerably good description of this capital. It stood nearly in the situation that Santa Cruz now occupies, and it is presumable that the latter was one of its suburbs; it was surrounded by a deep ravine that formed a natural fosse, leaving only two very narrow roads as entrances to the city, both of which were so well defended by the castle of *Resguardo*, as to render it impregnable. The centre of the city was occupied by the royal palace, which was surrounded by the houses of the nobility; the extremities were inhabited by the plebeians. The streets were very narrow, but the place was so populous as to enable the king to draw from it alone no less than 72,000 combatants, to oppose the progress of the Spaniards. It contained many very sumptuous edifices, the most superb of them was a seminary, where between 5000 and 6000 children were educated; they were all maintained and provided for at the charge of the royal treasury; their instruction was superintended by 70 masters and professors. The castle of the *Atalaya* was a remarkable structure, which being raised four stories high, was capable of furnishing quarters for a very strong garrison. The castle of *Resguardo* was not inferior to the other; it extended 188 paces in front, 230 in depth, and was 5 stories high. The grand alcazar, or palace of the kings of Quiché, surpassed every other edifice, and, in the opinion of Torquemada, it could compete in opulence with that of Moctesuma in Mexico, or that of the Incas in Cuzco. The front of this building extended from east to west 376 geometrical paces, and in depth 728; it was constructed of hewn stone of different colours; its form was elegant, and

altogether most magnificent: there were 6 principal divisions, the first contained lodgings for a numerous troop of lancers, archers, and other well-disciplined troops, constituting the royal body-guard; the second was destined to the accommodation of the princes and relations of the king, who dwelt in it and were served with regal splendour, as long as they remained unmarried; the third was appropriated to the use of the king, and contained distinct suites of apartments, for the mornings, evenings, and nights. In one of the saloons stood the throne, under four canopies of plumage, the ascent to it was by several steps; in this part of the palace were, the treasury, the tribunals of the judges, the armory, the gardens, aviaries, and menageries, with all the requisite offices appending to each department. The 4th and 5th divisions were occupied by the queens and royal concubines; they were necessarily of great extent, from the immense number of apartments requisite for the accommodation of so many females, who were all maintained in a style of sumptuous magnificence; gardens for their recreation, baths, and proper places for breeding geese, that were kept for the sole purpose of furnishing feathers, with which hangings, coverings, and other similar ornamental articles, were made. Contiguous to this division was the sixth and last; this was the residence of the king's daughters and other females of the blood royal, where they were educated, and attended in a manner suitable to their rank. The nation of the Quichés, or Tultecas, extended its empire over the greatest portion of the present kingdom of Guatemala; and, on the authority of the manuscripts mentioned above (which were composed by some of the Caciques, who first acquired the art of writing), it is related that from Tanuh, who commanded them, and conducted them from the old to the new continent, down to Tecum Umam, who reigned at the period when the Spaniards arrived, there was a line of 20 monarchs."

To show how far these statements can be relied on, it will now be worth while to pass in review the remains of Utatlan as they can be seen at the present day. I visited both Utatlan and Iximché in January 1887, and made surveys of the sites (see Plates LXXII. & LXXIII.). Utatlan lies about two miles to the W.S.W. of the modern town of Santa Cruz del Quiché. On the left of the track from the town, just before reaching the great barranca, there is a natural mound, the sides of which have been terraced, and on the top is a more or less level space measuring 200 by 150 feet. Within this space are several mounds surrounding a level plaza. A reference to the plan will show that two of the mounds are nearly square at the base, and these probably supported small "cues" or temples; the other two mounds are longer, and may have supported long houses. If these houses were built of stone with stone roofs they probably contained two parallel corridors or rooms not more than 9 feet wide and 200 feet long, divided off by transverse partitions into smaller chambers. If the lower part only were built of stone and the upper part of the walls and the roof were of wood and thatch, then the breadth of the houses may have been 20 to 25 feet, as no longitudinal partition-wall would have been needed. At the present time no traces of

house or temple walls are to be seen, and the stone facings have even been stripped off the foundation-mounds, for the whole group of ruined buildings has long been treated as a quarry by the people of Santa Cruz. There can be no doubt that this group of mounds represents the guard-house or Castle of Resguardo; but it is quite clear from the plan that the buildings were of the same nature as those found throughout the country, and they stand grouped together in the usual manner. The position they occupy is a naturally strong one, and would offer great facilities for defence, but there is nothing especially characteristic of a fortress about the buildings themselves.

After leaving this hill a walk of about two hundred yards brings one to the edge of the barranca and to the narrow natural causeway by which alone the city or stronghold of Utatlan could be approached. On crossing this narrow bridge one finds oneself on a fairly level space of ground about eighteen acres in extent, with almost precipitous sides, over which one can look down to the bottom of the barranca four hundred feet below.



Nearly the whole area affords some trace of ruined buildings, but almost all the stonework has been stripped from the foundations, and the buildings which stood on them have altogether disappeared. Stephens, who visited the ruins in 1840, gives the following account of the principal temple:—"The most important part remaining of these ruins is that which appears in the engraving, and which is called 'El Sacrificatorio,' or the place of sacrifice. It is a quadrangular stone structure, sixty-six feet on each side at the base, and rising in a pyramidal form to a height, in its present condition, of thirty-three feet. On three sides there is a range of steps in the middle, each step seventeen inches high, and but eight inches on the upper surface, which makes the range so steep that in descending some caution is necessary. At the corners are four buttresses of cut stone, diminishing in size from the line of the square, and

apparently intended to support the structure. On the side facing the west there are no steps, but the surface is smooth and covered with stucco, grey from long exposure. By breaking a little at the corners, we saw that there were different layers of stucco, doubtless put on at different times, and all had been ornamented with painted figures. In one place we made out the body of a leopard, well drawn and coloured.

"The top of the Sacrificatorio is broken and ruined, but there is no doubt that it once supported an altar. . . . It was barely large enough for the altar and officiating priests and the Idol to whom the sacrifice was offered."

I have reproduced Catherwood's sketch and plan which accompanies this description; the scale given on the plan does not agree with the description, and unfortunately I did not take any detailed measurements of the mound in its present ruined condition; but in any case it is clear that the building was a small one. The sides of the long mounds, which are just indicated in my plan, are perpendicular, and these foundations may have supported stone-roofed buildings, in which case we know that the chambers could not have been more than nine feet wide, and even on the larger mounds there would not have been room for more than two of such chambers side by side. The small fragment of a stone-vaulted roof in the remains of a half-buried chamber shows that the Quichés understood the art of building stone roofs. But, to judge from Alvarado's statement that it was the intention of the Indians to set fire to the town and burn or smother him and his followers, there can be little doubt that some of the houses must have been built of inflammable material, probably of wood and thatch. But amongst these small and distinct foundation-mounds where is the Palace to be found?

The absurdity of Fuentes's oft-copied description at once becomes evident. According to the measurements he gives, the Palace alone would occupy nearly three times the whole space available for building, and with the seminary, the gardens, and the aquatic fowl must be relegated to a dreamland suffused with the afterglow of Oriental splendour from which the Spanish chronicler was so ready to seek inspiration.

It is hardly worth while to compare the account of Iximché given by Fuentes and Juarros with the facts revealed by an examination of the ruins (Plate LXXIII.); it would be to a great extent a repetition of what has already been said with regard to Utatlan. The sites were similar; both were peninsulas almost surrounded by deep barrancas, and approachable only by a single neck of land, and each was guarded on the outer edge of the barranca by a girdle of "atalayas" or watch-towers, which were most probably small truncated pyramids supporting a cue or shrine which served for the religious use of the outlying population. The bird's-eye view given on Plate LXXIII. is taken from Fuentes's MSS.

All the tribes or nations whom the Spaniards encountered in the subjugation of Guatemala and its neighbourhood appear to have had as their headquarters such

strongholds as Utatlan and Iximché, or towns built on rocky islands in the lakes. Such was the stronghold in the lake of the Lacandonés and the island town of Puchutla, described in the pages of Remesal, which was conquered in the year 1559. Such, too, was the island of Tayasal in the Lake of Peten, the headquarters of the Itzas, captured in 1697, and with these may be classed the ruins on the hill-top at Uspantan and the curious groups of temples and houses which crown the ridges of the hills round the valley of Rabinal. None of them appear to have possessed walls and bastions such as we are accustomed to associate with fortresses; but all were placed in naturally strong positions, and were easily defensible, and their existence tends to the conclusion that the condition of society was one of continual intertribal warfare.

None of the sites of these strongholds have yielded any examples of the carved hieroglyphic inscriptions, highly ornamented stone buildings, or elaborately-sculptured monolithic monuments which are to be found at Copan, Quirigua, or Palenque; and it cannot be too strongly insisted on that between the civilization revealed to us by those great ruins and the culture of the Indian tribes conquered by the Spaniards there is a great gap which at present we have no means of bridging.

FOUNDATION-MOUNDS BETWEEN THE CITY OF GUATEMALA AND MIXCO.

(PLATES LXXIV. & LXXV.)

ON the plain to the west of the city of Guatemala, between the city and the village of Mixco, are the remains of an ancient Indian town extending over more than a square mile. The plain is now under cultivation and has probably been so for a great number of years, and the plough has rounded off the edges of the higher foundation-mounds, and some of the lower mounds have been almost entirely worn away. The plan (Plate LXXIV.) gives only the principal groups of mounds, and those to the south-west are not very accurately plotted.

The surface of the ground is strewn with potsherds, some pieces showing traces of colour, and with chips and flakes of obsidian. I found one stone axe, and one fragment of a pottery head very well moulded.

There are also to be found lying in front of Señor Arevalo's house some fragments

of stone frogs, about nine inches long, very rudely carved, and many pieces of mealing-stones and rollers.

The two squat stone figures now placed on either side of the gateway leading to Señor Arevalo's house (Plate LXXV., *a*) were found in the neighbourhood of the mounds, and a similar figure, now much mutilated, stands by the roadside near the entrance to the city.

The mounds themselves are composed of earth, and even where cuttings had been made into them I could see no trace of stonework. However, Señor Arevalo, whose house is built on the top of one of the mounds, and whose farm-land extends for some distance among them, told me that he had dug out a good many stones from the interior of the mounds, and he showed me some which he had used in building his stables. These stones were of a volcanic rock, well faced and measuring about 3 feet \times 1 foot \times 6 inches. One of them had the head of an animal cut on it in low relief.

There are still some mounds on the east side of the Barranca within the suburbs of the city of Guatemala, and it is probable that others were destroyed when the city itself was built.



RUINS OF MENCHÉ.

PERSONAL NARRATIVE.

In the year 1882 I travelled through the forest from Coban, in the Alta Vera Paz, to Peten, and thence, on the 14th March, I started in a canoe from the Paso Real, in company with Mr. Schulte, the Manager of Messrs. Jamet and Sastrés, Mahogany Cutters, on an expedition down the Rio de la Pasion, my object being to reach the ruins of Menché. I had heard of these ruins from Professor Rockstroh, of the Instituto Nacional in Guatemala, who had visited them the year before, and was, I believe, the first European to write any description of them. At the Paso Real I was fortunately able to secure as guide one of the canocmen who had accompanied Professor Rockstroh on his expedition.

Three days later I parted company with Mr. Schulte near the mouth of the Rio Lacandon, where he was about to establish a new "Monteria." The banks of the river here begin to lose their monotonous appearance, and, for the first time since leaving the Paso Real, we caught sight of some hills in the distance. At mid-day we entered a gorge about a league in length, where the river flows between high rocky and wooded banks, and in some places the stream narrowed to a width of forty feet. The current was not very swift, but the surface of the water moved in great oily-looking swirls which seemed to indicate a great depth. Below the narrows the river widens very considerably and the current becomes much more rapid, and great care had to be taken in guiding the canoes so as to avoid the numerous rocks and snags. This day we travelled about thirty miles below the Boca del Cerro, and then camped for the night. Several times during the day we had seen traces of the "Lacandones," "Jicaques," or "Caribes," as my men called them (the untamed Indians who inhabit the forests between Chiapas and Peten), and while stopping to examine one of their canoes, which we found hauled up on a sand-spit, its owner, accompanied by a woman and child, came out of the forest to meet us. The man was an uncouth-looking fellow, with sturdy limbs, long black hair, very strongly marked features, prominent nose, thick lips, and complexion about the tint of that of my half-caste canoemen. He was clothed in a single long brown garment of roughly-woven material, which looked like sacking, splashed over with blots of some red dye. The man showed no signs of fear, and readily entered into conversation with one of my men who spoke the Maya language, but the woman kept at a distance and I could not get a good look at her.

Later in the day we landed to visit a "caribal," or Indian village, which my guide

told me stood somewhere near the river-bank. There was no trace of it, however, near the river, so we followed a narrow path into the forest, marked by two jaguars' skulls stuck on poles, and here and there by some sticks laid across the track, over which the Indians had probably dragged their small canoes. About two miles distant from the river we found three houses standing in a clearing near the bank of a small stream. A woman came out to meet us, and received us most courteously, asking us to rest in a small shed. Her dress was a single sack-like garment, similar to that worn by the man we had met earlier in the day; her straight black hair fell loose over her shoulders, and round her neck hung strings of brown seeds interspersed with beads and silver coins, dollars and half-dollars, which she said were obtained in Tabasco. Two other women came out of their houses to greet us, and they told us that all the men were away hunting for wild cacao in the forest, and would not return for five days. The walls of the houses were very low, but in other respects they resembled the ordinary ranchos of the civilized Indians. I asked if I might look into one of them, but my *mozos* strongly advised me not to make the attempt, as the numerous howling dogs shut up inside were savage and were sure to attack me.

The clearing round the houses was planted with maize, plantains, chillies, tobacco, gourds, tomatoes, calabash-trees, and cotton. We exchanged a little salt for some plantains, yams, and tomatoes without any haggling, and the women agreed to make me some *totoposte*, which I was to send for in a few days, and one of them, pointing to a silver dollar on her necklace, said they wanted a coin like that in payment.

I was surprised to find the women so pleasant-mannered and free from the dull shyness which characterizes the civilized Indians. On my return up the river some days later I again visited the "caribal," and was received with equal courtesy by the men, who had then returned from the forest, to whom I repeated my request to see the inside of one of their houses; however, a very rapid glance was sufficient to satisfy my curiosity, for as soon as I showed myself at the half-open door seven or eight dogs tied to the wall-posts nearly brought down the house in their efforts to get at me, and two of them were with difficulty prevented by the women from breaking the cords which held them.

Some especial significance must attach to the wearing of the brown-seed necklaces, for no offers which I could make would induce either man or woman to part with one of them. I was much impressed by the striking likeness which the features of the elder man, who appeared to be the leader of the village, bore to those carved in stone at Palenque and Menché. The extremely sloping forehead was not quite so noticeable in the younger men, and it may be that the custom of binding back the forehead in infancy, which undoubtedly obtained among the ancients, is being now abandoned. These people still use bows and stone-tipped arrows, which they carry with them wrapped in a sheet of bark.

After visiting the "caribal" we continued our course down-stream, and camped for

the night on the right bank of the river; the next morning an hour's paddle with the very rapid current brought us in sight of a mound of stones piled up on the left bank of the river (see Plate LXXVIII., *a*), which we had been told marked the site of the ruins.

On the 18th March, the day of my arrival, the water in the river was so low that the mound stood high and dry; but from the colour and marks on the stones it appears as though the average height of the water was two or three feet from the top of the mound. We soon scrambled up the rough river-bank and began to cut our way through the undergrowth in search of the ancient buildings, which we found on a succession of terraces rising in all about 250 feet from the river. After clearing away some of the vegetation which enshrouded it, I took up my quarters in the Temple marked K on the plan, and remained in the ruins until the 26th March.

On the morning of the 20th three of my men were sent in a canoe up-stream to the "caribal" to get the supply of totoposte I had ordered from the Lacandones; they returned the next day without much food, but handed me something they had brought with them carefully wrapped up in paper, which, much to my surprise, proved to be a card from M. Desiré Charnay, the head of a Franco-American scientific exploring expedition, who for two years had been at work examining the antiquities of Mexico and Yucatan. M. Charnay had come up the Usumacinta from Frontera to the head of the navigable water at Tenosique, and had thence ridden through the forest to a spot on the river-bank within a short distance of the "caribal" already described, known to the canoemen as the Paso de Yalchilan. Having no canoes in which to convey his party down the river, he had been brought to a halt and was making arrangements for the passage of himself and his secretary in two small cayucos borrowed from the Lacandones when, to his great surprise, my canoe appeared on the scene. The next day I sent my canoes back for him, and, leaving his men camped at Yalchilan, he arrived at the ruins with his secretary, and occupied a house, H, which we had cleared for him, and he very kindly added his ample supply of provisions to my somewhat meagre stock.

M. Charnay has published an interesting account of his journeys in a book entitled 'Les Anciennes Villes du Nouveau Monde,' and the collection of casts made from moulds taken during his two years' wanderings, which is now exhibited at the Trocadero Museum in Paris, and in other museums in Europe and America, has formed the basis of much modern research.

In one of the half-ruined buildings we found a beautifully-carved lintel fallen from its place and resting face downwards against the side of the doorway. This excellent example of Maya art I determined to carry home with me, and at once set my men to work to reduce the weight of the stone, which must have exceeded half a ton, by cutting off the undecorated ends of the slab and reducing it in thickness. This was

no easy matter, as we had not come provided with tools for such work; but shift was made with the end of a broken pickaxe and some carpenter's chisels. By keeping *mozos* at work at it three at a time in continued rotation, by the end of a week the weight of the stone had been reduced by half, and we were able to move it to the river-bank and pack it in the bottom of our largest canoe. On the 26th of March we struck our camp, and all started up the river together, and on the following day, at the Paso de Yalchilan, I lost the pleasant companionship of M. Charnay, who had rejoined his men and returned direct to Tenosique. It was very hard hauling the canoe, heavily laden with the stone lintel, against the swift current of the river, and we were four days getting as far as the mouth of the Rio Lacandon. On the 30th March we reached the first inhabited rancho at Santa Rosa, and the next day I met Mr. Schulte at the mouth of the Rio Salinas and accepted a passage in his canoe to the Paso Real, leaving the *mozos* and my heavily-laden canoes to follow more slowly. On the way up-stream, we landed on the left bank of the river not far from the mouth of the Rio Salinas, and passed a few hours in examining the ruins of a town of considerable extent. I could find no stone houses standing, but there were several fragments of sculptured stones bearing hieroglyphic inscriptions lying amongst the numerous foundation-mounds, and the whole site would probably repay careful exploration.

From the Paso Real the stone lintel was carried by Indians to Sacluc, where I purchased a saw from one of the wood-cutters, and was again able slightly to reduce the weight of the stone. From Sacluc it was hauled across the Savannah to the neighbourhood of Flores on a solid-wheeled ox-cart, the solitary wheeled vehicle then existing in the province of Peten; then it was again slung on a strong pole and carried by 16 Indian *mozos* through the forest to the British frontier village of El Cayo, where it was again packed in the bottom of a canoe and sent down the river to Belize. It now rests at Bloomsbury in the British Museum.

At the time of my visit Menché was supposed to lie within the Guatemalan frontier, and a few years later leave was obtained for me from the Government of that Republic to remove some other carved lintels from the ruins. Gorgonio Lopez and his brothers were sent down the river for this purpose, and after making careful moulds of all the carved lintels still in position in the houses, they removed some others from those houses which had fallen into ruins; these they packed in the canoes and hauled up the Usumacinta to the mouth of the Rio Salinas. That stream was then ascended to a point above the Nueve Cerros, where canoe-navigation ends, and the stones were then carried overland to Coban, where they were carefully packed and sent in carts to the port of Panzos, on the Rio Polochic, for shipment to England.

I presented these sculptures also to the National Collection, and they are now to be seen at the British Museum.

By a recent treaty Menché and the valley of the Lacandon River have passed into the possession of Mexico.

Since the date of my visit a party of mahogany-cutters formed a camp on the ruins, but at the end of two years the "monteria" was abandoned, and the ancient city is again left in the solitude of the forest.

DETAILED DESCRIPTION OF THE RUINS.

The plan on Plate LXXVI. must not be regarded as more than a rough sketch. I had no instruments with me for measuring vertical angles; the distances were judged by pacing, and checked by the occasional use of a tape measure.

Traces of buildings could be detected for a distance of at least 150 yards to the east of those shown on the plan.

The houses marked on the plan with a definite outline are still in a fair state of preservation, but when the outline is left indefinite the buildings have fallen and are mere heaps of broken masonry. Both stone and wooden lintels had been used, but the wooden beams had completely disappeared. The first line of buildings stood about 60 feet above the level of the river at the time of my visit.

The ground-plan of House A is given on Plate LXXVII. There had been wooden lintels over the doorways. The inner chamber appears to have been used as a burial-place. The remains of a stone superstructure could be traced on the roof, similar to that shown in the photograph of Temple K (Plates XC., b, & XCI.), and this form of structural ornament was probably used in many of the other buildings which are now in ruins.

Houses B, C, and D had stone lintels over the doorways, some of them ornamented with carving. Those in House B are still in position, although the roof has fallen and the chambers are completely blocked up.

House D is wholly ruined, and the two lintels figured on Plates LXXIX. & LXXX. were dug up out of the fallen masonry.

At the back of this first line of houses are two pyramidal foundation-mounds. At the west end of the line a stone-faced slope rises to a small level plaza. On the south side of this plaza are the remains of a house, on the west side is a pyramidal foundation-mound, and on the north side there is an oblong mound with three flat-topped circular stones in front of it. The stones were probably used as altars and are of frequent occurrence in the ruins.

Between the front line of houses and the houses marked E, F, and G, there is a rise in the ground marked by a stone-faced slope, and the principal approach to the

buildings on the higher levels appears to have been between F and G, where the stairways are clearly marked. At the eastern end of the slope are three fallen stelæ, carved in low relief on one side, and some circular altars, all much damaged.

A ground-plan of as much as could be made out of House E, without removing the fallen masonry, is given on Plate LXXVII., and photographs of the lintels of this house are given on Plates LXXXI. & LXXXII.

The lintels of House F were almost completely buried at the time of my visit; they were dug out the following year by Gorgonio Lopez, and are now in the British Museum (see Plates LXXXIII., LXXXIV., & LXXXV.).

House G is almost completely ruined. Photographs and drawings of two carved lintels from this house are given on Plates LXXXVI., LXXXVII., LXXXVIII., & LXXXIX. It is the lintel figured on Plate LXXXVI. which I removed at the time of my visit. It had fallen from its original position face downwards, and the carving on the under surface was fortunately uninjured, but the hieroglyphic inscription which had been carved along the outer side had been destroyed. On the lintel over the next doorway this outer inscription was well preserved, and is shown on Plate LXXXIX.

A ground-plan of House H is given on Plate LXXVII. It was in this house that M. Charnay and his assistant took up their quarters. A photograph of the exterior of the house is given on Plate XC., *a*. Two circular altars stood in front of the house. There are niches in the outer wall between the doorways, probably for the reception of stucco figures. The door-lintels are not ornamented. The upper part of the outer wall had been decorated in a manner which will be described when dealing with Temple K. The back of the house seemed to be built into the slope of the hill. Leading down from the outer chamber are two passages with steps communicating with an inner and lower chamber which appeared to have been used for interments. The house contained some raised stone benches.

A ground-plan of House J is given on Plate LXXVII. The stone lintels are not ornamented. The four houses to the westward on the same level as House J do not present any marked features of interest; the two on raised foundations are almost completely ruined, the other two have undecorated stone lintels.

Temple K (Plates XC., *b*, to XCIV.) is the building in which I lived during my stay at the ruins. A ground-plan is given on Plate LXXVII. It is a long narrow structure 73 feet in length and 17 feet broad, and the height from the ground to the top of the superstructure is about 42 feet. Each of the three doorways has a stone lintel carved in rather low relief (see Plates XCII. to XCIV.). The outer surface of the wall up to the projecting cornice showed no sign of sculptured decoration, but it had evidently been covered with a coating of coloured plaster. Above the projecting cornice the front of the building had been elaborately decorated, but the sides and back appear to have been left without ornament.

On the frieze, between the two cornices (see Plates XC., *b*, & XCL.), there are three

larger and eight smaller niches or recesses in the stonework. The larger niches have each held a seated human figure moulded in stucco over a sort of rubble skeleton, and the eight smaller niches probably held similar figures of smaller size.

The best-preserved of the rubble skeletons is to be seen in the middle of the superstructure above the frieze. Here the figure was of heroic size; the rubble body can easily be seen (Plate XCI., *a*) resting on the stone bench on which the figure was seated, with the two long stones on which the left leg was moulded still in place. The square hole in the body formerly held the long stone which pinned the figure against the wall. The rough outline of the head and the position of the feather headdress can be seen in the photograph, and close inspection showed the projecting stone on which the nose had been moulded.

The superstructure itself, which now resembles a pigeon-house, is hollow, and appears to have been used merely as a support for stucco ornament, of which only slight traces now remain.

The interior of the temple is divided into chambers and recesses by a number of interior buttresses. In the recess almost opposite to the middle doorway there was a stone figure, more than life-size, seated cross-legged, the hands resting on the knees. The head with its head-dress of grotesque masks and plumes was broken off and lying beside the body. From the number of fragments of ornamental plaster-work which, together with rubbish and broken pottery, choked up the recess, it seems probable that some sort of ornamental plaster canopy had formerly occupied the upper part of the recess.

A large number of rough pottery bowls decorated with grotesque heads had been placed round the figures, and similar bowls were to be found in most of the other buildings: nearly all contained some half-burnt copal, and, from the position in which they were found, it is quite clear that they must have been placed there after the buildings had been partly ruined, and there can be little doubt that they are made and brought there by the Lacandon Indians, who are said still to hold the place in reverence.



At the back of Temple K there are two ruined houses and two pyramidal mounds, and beyond them again are traces of terraces and one long house; but of these remains I had no time to make a careful examination.

To the west of the town is a triangular hill with stone-faced slopes on the north and east and rough ground to the west. On the flat top of this hill are the remains of several buildings, of which the houses marked L and M had stone lintels. Photographs of those lintels which were sufficiently well-preserved are given on Plates XCV. to XCVII.

The inscription, of which a photograph and drawing are given on Plate **XCVIII**, is on the outer side of a stone lintel, but I am unfortunately unable to say from which house it was taken. The original stone is one of those removed from the ruins by Gorgonio Lopez and his brothers which were repacked in Coban for transmission to England. However, by some mistake this particular stone was put into the wrong case and sent to the Museum at Berlin, where I have allowed it to remain. The photograph on Plate **XCVIII** is from a cast kindly sent to me by the Curator of the Berlin Museum. The inscription is particularly interesting, as it contains the only Initial Series found at Menché.



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CENTRALI-AMERICANA;

OR,
CONTRIBUTIONS TO THE KNOWLEDGE
OF THE
FAUNA AND FLORA
OF
MEXICO AND CENTRAL AMERICA.

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IZAMAL.

CHICHÉN ITZÁ.

PERSONAL NARRATIVE.

TOWARDS the end of the year 1888 I journeyed by way of New York and Havana to Progreso, the chief port of Yucatan, and on Christmas eve arrived in the City of Merida. Here I passed a month, in much discomfort, waiting for the arrival of my heavy baggage from England, and for the letters which had been promised to me from the Government authorities in Mexico.

The vessel with the baggage met with such heavy weather in the Gulf that she passed Progreso without attempting to land cargo, and went on for a trip round the other Gulf ports, returning finally to Progreso about a fortnight late.

During this time I was able to make a flying visit to Mr. Thompson, the American

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Consul, who was engaged on a most thorough examination of the ruins at Labná, and also to spend one day at the great ruins of Uxmal. Then followed the usual delay in passing the baggage through the Custom-House, although orders had come from Mexico that all my stores should be entered free of duty; but delay and waste of time seem to be inevitable as soon as one sets foot on Spanish-American soil. At the end of a month I was heartily tired of Merida, and was delighted to turn my back on it. I was able to travel along the new railroad as far as Cacalchen and carry with me as much of my baggage as had come to hand. Unluckily this did not include the moulding-paper, which, despite telegrams and letters, was delayed for a month or more in Havana, and at last arrived half destroyed by salt water.

I was now breaking what was to me completely new ground, none of my old companions who assisted me at Copan and elsewhere were with me, and the attempt to employ a half-caste, as successor to Gorgonio Lopes, proved a complete failure.

At Izamal I was most hospitably received by Mr. Gaumer, an American doctor, who had long been a collector of natural-history specimens for the 'Biologia.' Here waggons were engaged to convey my baggage to 'Citas, the nearest village to Chichén Itzá on the main road to Valladolid, and I myself drove on to Valladolid to present letters to the local authorities and arrange for a supply of labourers.

The journey was made in a volan coché, which is the only kind of conveyance used in the country. It is a two-wheeled covered cart, without springs, and with the body suspended on leather straps; a mattress is placed on the bottom for the traveller to lie on, but this does not afford much protection against the heavy jolting over the very rough roads.

On my return to 'Citas I engaged horses and men to carry the baggage, and leaving the main road travelled about twelve miles through the woods to the small village of Pisté, two miles distant from the ruins of Chichén.

This village was totally abandoned after the Indian raid in 1847, and is only now becoming repopulated; before the raid it must have contained over thirty houses and a fair-sized church.

I arrived at Pisté on the 6th February, and from that time onwards until the 2nd July, with the exception of about a fortnight spent in visits to Valladolid and Izamal trying to arrange for a better supply of labourers, I was continuously at work at the ruins.

Until a very few years ago Yucatan was a most out-of-the-way corner of the world; it had little commercial intercourse with other countries and was seldom visited by travellers. The Spanish families, most of them large landowners, formed an exclusive aristocracy with complete control over the Indians, who were then, as indeed they are now, in a state of villenage, or, more accurately, "adscripti glebæ." Although this condition of villenage is not likely to be in accordance with the laws of the Mexican Republic, it is strictly enforced by local custom, and in Yucatan, as well as in the

Central-American republics, a moneyless debtor can be forced to give his services to his creditor until the debt has been worked off. Such debts are transferable, and a creditor is allowed to sell his claim to a third party, who thus becomes in turn entitled to the debtor's services. Under these circumstances it can be easily understood that free Indian labourers are scarce in the land.

The only important export from the country is the "Sisal hemp" of commerce, and the principal industry is the cultivation of the henequen (*Agave rigida*) and the preparation of the "hemp" from the fibre of its leaves. It was found profitable to raise henequen when the selling-price of the fibre was half a dollar the arroba of twenty-five pounds. A few years ago a great change commenced; principally owing to the failure of the hemp-crop in Manila, partly to the great increase in the demand for twine used in the reaping and binding machines when harvesting the huge wheat-crop of the Western States, the "hemp" steadily rose in value until, during my stay in the country, it was sold for \$3. c. 35 the arroba. As the cost of production was only very slightly raised, the landowners suddenly found themselves wealthy, business rapidly increased, and the capital was overrun by commercial travellers and agents of foreign firms.

There was naturally a great demand for field-labourers, but the Indian, tied to the soil and usually deeply in debt to his master, reaped little benefit from the change.

As I had need of many hands to clear the large extent of ground covered by the ruins, I could not have arrived at a more unfortunate time, so far as labour was concerned.

However, as Chichén Itzá lay far away from the henequen district, I trusted that my strong recommendations from the Mexican Government would ensure me sufficient assistance from the local authorities, who always have a number of Indian soldiers under their orders, chiefly employed as labourers. I began work with the few hands I could collect in the village of Pisté, and as these men returned to their homes about four o'clock every day, I was for some time left to pass the nights camped alone in the ruins. Then, under arrangement with the Comandante at Valladolid, small parties of Indian soldiers were sent for a week at a time to work at the ruins—I of course paying their wages—and for a few weeks twenty to thirty men may have been working in this way; gradually these dropped off and for many days in succession only two or three men would turn up to work. I see in my notes, "for a fortnight only one man has come to work, and he is employed cutting fire-wood and bringing water from the 'cenote'; then for a week or more none came at all." After this matters improved for a time, but during the whole of my stay I was in constant and wearisome communication with the local authorities, who made promise after promise and almost invariably broke them. Towards the end of my stay we depended almost entirely on local labourers hired at about three times the current wage. In one matter, however, I was especially fortunate. I had come without any companions and found my small worries and bickerings all the harder to bear on that account; but early in March Mr. H. N.

Sweet, of Boston, who had been for some months assisting Mr. Thompson, the American Consul, in his explorations at Labná, came to pay me a visit for a week and then volunteered to stay and help me as long as his engagements would permit him. Luckily for me nothing occurred to necessitate his return home until July, and I gained not only a delightful companion but a most energetic and enthusiastic worker, and without his timely help my expedition must have proved almost a failure. As Mr. Sweet is a careful and finished photographer I turned over my apparatus to his charge, and the series of photographs of Chichén now published can be left to speak for themselves.

I could now devote my time more particularly to the survey, but in this work also Mr. Sweet gave me the greatest assistance.

During the month of May we were both ill with fever, but as our attacks fortunately occurred on alternate days we could each take it in turn to be nurse and patient. The fever left us both very weak, and as at this time we were entirely deserted by our workmen it was difficult even to supply ourselves with wood and water; and I well remember one occasion on which it took us the whole afternoon to draw our water at the 'cenote, carry the tin only half full to the foot of the stairway, and then drag it step by step up to the house, so weak had the fever left us.

However, we both appeared to make a complete recovery, and as about this time the supply of labourers was better, we made great progress with the clearing. Then the heat became intense and the physical hard work very trying; for the Indians, although they could be trusted to some extent in the matter of clearing bush, would do next to nothing in the way of digging and moving away earth and rubble, unless one of us not only worked with them but worked much harder with pickaxe and spade than they did.

Towards the end of our stay we were principally occupied in making paper moulds of the sculpture, all of which we had to do ourselves, as none of our labourers could be trusted as assistants in such work. At last our stock of provisions began to run short, and as we could buy hardly anything to eat in the neighbourhood, after living for a day or two on nothing more than a little rice and some beef-tea, we were forced to pack up, and on the 2nd July set out on our return to Merida. Mr. Sweet had business to occupy him for a few days in Merida, so I said good-bye to him and took passage in the first steamer for New York; just in time, I think, for the change of air to save me from a serious illness, and as it was I did not recover my usual health for more than six months.

I attribute our fever to the bad water of the 'cenote. The Casa de Monjas made us an excellent dwelling-house, and as we had seven stone-roofed rooms at our disposal we were even able to make ourselves quite comfortable. On the broad terrace which ran round the house, thirty feet above the ground, we were on a level with the tree-tops, and we could see over the country for miles round to an unbroken horizon.

The weather was delightful up to the middle of May. The woods were alive with singing birds, and the beautiful Mot-Mots frequently flew in and out of our rooms; later on the heat became intense through the day and the showers not unfrequent. The cloud effects were most beautiful, and we never tired of watching the storm-clouds, three or four at a time in different directions, travelling across the country.

The nights were fairly cool, and the clear horizon viewed from our terrace and the sound of the breeze amongst the tree-tops gave one the feeling of being at sea. Happily we were almost entirely free from mosquitos and ticks, and only suffered slightly from coloradillas, the harvest-bugs of the country.

In spite of the hard work, the worry about labourers, and the attack of fever, I cannot help looking back on my stay at Chichén with considerable pleasure and satisfaction.

PRINCIPAL NOTICES AND DESCRIPTIONS OF THE RUINS.

'Relacion de las Cosas de Yucatan, sacada de lo que escribió el padre Fray Diego de Landa de la orden de St. Francisco.'

A Manuscript preserved in the Royal Academy of History at Madrid, dated 1566; first published by the Abbé Brasseur de Bourbourg in 1860, and again in 1864 (Paris: Arthur Bertrand, éditeur). A more exact copy is given as an appendix to the 'Ensayo sobre la interpretacion de la Escritura Hieratica de la America Central' (a translation from French into Spanish of M. Leon de Rosny's Essay) by Sr. Don Juan de dios de la Rada y Delgado. (Madrid, 1884.)

'Relacion de la Villa de Valladolid de Yucatan, escrita por el Cabildo de Aquella Ciudad.'

An answer, dated 8 April, 1579, to a despatch from the Spanish Government. Found by Dr. Sebastian Marimon, in the Archives of the Indies at Seville, and published by him in 1884. (Madrid, Imprenta de Fortanet.)

'Historia de la Provincia de Yucathan,' por el M. R. P. Fr. Diego Lopes Cogolludo. (Madrid, 1688.) Second edition, Mérida, 1842. Third edition, 1867.

'Incidents of Travel in Yucatan,' by John L. Stephens. (John Murray, London, 1843.)

'Ruines Américaines' (pp. 339-46, photos 26-34). Désiré Charnay and Viollet le Duc. (Paris, 1863.)

'Les Anciennes Villes du Nouveau Monde,' par Désiré Charnay. (Paris, Hachette, 1885.)

In the year 1528 Francisco de Montejo, who had been appointed Adelantado and Governor of Yucatan, landed with 400 Spaniards on the north-east coast near Conil, and attempted to bring the natives under Spanish rule.

No contemporary record of this expedition is left to us, but both Landa and

Cogolludo state that Montejo formed a camp at Chichén Itzá, and made it his headquarters for some considerable time, apparently for nearly two years.

This expedition ended in great loss and disaster to the Spaniards; Montejo and the greater number of his followers appear to have been driven to the north coast, whence they found their way by sea to Campeche; and another party under the command of one of his lieutenants, Alonzo Davila, penetrated the country to the south in the direction of Bacalar, and finally escaped by sea to Trujillo in Honduras. Later on Alonzo Davila rejoined the Adelantado in Campeche, but no headway could be made against the natives, many of the soldiers deserted the Adelantado, tempted by the glowing accounts they received of the riches of Peru, and finally the remnant of the force was removed by sea from Campeche to Tabasco.

Landa, who may have conversed with some of the survivors of the expedition, confines his account of it to a few paragraphs, and Cogolludo, writing about 120 years later, although he enters much more into detail, admits that many conflicting accounts were current, and devotes some space to the correction of the version given by Herrera in the Decads.

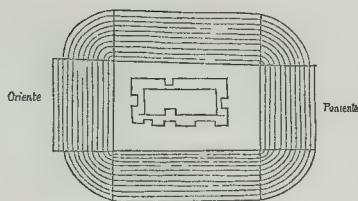
The document drawn up in Valladolid in 1579, in answer to a despatch from the Spanish Government, in no way alludes to this early occupation of the site by the Spaniards. It is quite possible that the name Chichén Itzá may have been applied to an area extending far beyond the site of the ruins, and until more conclusive evidence is forthcoming it may be well to treat with some caution the generally accepted report that the Spaniards were camped for two years on the site of the town itself.

It was not until the year 1540 that a successful expedition was made, and the Indians began to come under the Spanish dominion. Merida was founded in 1542 by Francisco de Montejo, the son of the Adelantado, and in the same year his cousin of the same name started on an expedition to the west, and founded a settlement at Chuaca. This site was found to be unhealthy, and in 1545 the Spaniards moved to what is now the town of Valladolid, about ten leagues distant from the ruins of Chichén.

The first description of Chichén Itzá is to be found in the notes of Diego de Landa, Bishop of Yucatan, which are supposed to have been written in the year 1566. It is as follows:—

“Chichén Itzá is very well situated 10 leagues from Izamal and 11 from Valladolid, and the elders among the Indians say that they remember to have heard from their ancestors that in that place there once reigned three Lords who were brothers and who came to that land from the west. And they brought together on these sites a great number of towns and people, and ruled them for some years with justice and in peace.

“They paid much reverence to their God and on this account they raised many and fine buildings, and of one in particular, the greatest of them all, I will here draw the plan, as I drew it when I was standing on it, so that it may be the better understood.



"These Lords, they say, came over without any women, and they lived chastely, and all the time that they thus lived they were held in high esteem and obeyed by all. Then, as time went on, one of them disappeared, and doubtless he must have died, although the Indians assert that he left the country in the direction of Bacalar.

"The absence of this Lord, however it may have come to pass, caused such a change in those who ruled the State that soon they split into factions, so wanton and licentious in their ways, that the people came so greatly to loathe them that they killed them, laid the Town waste and themselves dispersed, abandoning the buildings and this beautiful site which is only ten leagues from the sea, and has much fertile land around it. The plan of the principal building is the following:—

"This building has four stairways which look to the four quarters of the world, each is 33 feet in breadth and has ninety-one steps, and it is killing work to ascend them; the steps have the same height and breadth which we give to ours. Each stairway has on a level with the steps two low balustrades, two feet in width, of good masonry, as indeed is the whole edifice. The building is not square cornered, for from the edge of the ground and from the balustrades in the opposite direction they have begun to work some rounded blocks which rise at intervals and confine the building in a very pleasing regularity. There was, when I saw it, at the foot of each balustrade the savage mouth of a serpent curiously worked out of a single block of stone. The stairways being finished in this manner there remains on the summit a small level plain, on which stands a building arranged in four chambers. Three of them run round the outside without division, each one with a door in the middle and covered with a gable roof. The fourth, that to the north, stands by itself with a corridor of thick pillars. The chamber in the middle, which must have been the little enclosure formed by the arrangement of the walls of the building, has a door which opens into the northern corridor; it is roofed above with wood, and it was used as a place for burning incense.

"And at the entrance of this door or of the corridor a sort of arms was sculptured on a stone which one could not well understand. This building must have had many others (sculptures) and still has them to-day round about large and well done, and all

the surface plastered over with them, and there still are in places survivals of the plaster-work, so strong is the cement which they made there.

"There was in front of the stairway, to the north a little way off, two small theatres built of stone with four stairways, and paved with flagstones on the top, on which they say they played farces and comedies for the solace of the public.

"There runs from the patio in front of these theatres a beautiful broad causeway to a pool about two stone throws off. In this pool they have had, and had at that time, the custom to throw into it live men as a sacrifice to the Gods in time of drought, and they hold that these men do not die although they are never more seen. They threw in also many things made of precious stones and other things which they prized, so that if this land has had gold in it, it would be in this pool that most of it would be, so greatly did the Indians revere it.

"This pool has a depth of fully seven fathoms to the surface of the water, and is more than a hundred feet across and is round in shape, and it is a wonder to look at, for it is clean cut rock down to the water, and the water appears to have a green colour, and I think this is caused by the trees which surround it—and it is very deep.

"There is on the top, near the opening, a small building where I found Idols made in honour of each of the principal buildings of the land, almost like the Pantheon of Rome. I do not know if this was a contrivance of the ancients or one of the people of to-day, so that they might meet with their Idols when they went to the pool with their offerings.

"I found lions worked in high relief, and jars and such other things, that I do not know whether anyone will say that these people had no iron tools.

"I also found two men of great size carved in stone, each in one piece, naked except for the small covering which the Indians wear. Their heads were by themselves, with earrings in their ears as the Indians wear them, and there was a spike in the back part of the neck, which fitted into a deep hole made for it in the neck itself, so that when it was fitted in the whole shape became complete."

Landa, in other passages, mentions Chichén Itzá and Cozumel as the two principal religious centres of Yucatan.

In the year 1579, thirty-four years after the founding of Valladolid, a circular despatch was sent from the Spanish Foreign Office to the various Colonial Governments asking questions with regard to the discovery and conquest of the provinces, nature of the soil, position of towns, &c., and also asking for information regarding the condition of the native inhabitants, and explanation of the names of the towns, &c.

A few years ago Dr. Sebastian Marimon, of Seville, was fortunate enough to discover, in the Archives of the Indies, the answer to this despatch sent from the town of Valladolid, written by three of the original 'conquistadores' who were appointed by the Municipality as a Committee to draw up the report. In it is the following description of Chichén Itzá:—

"Eight leagues from this town stand some buildings called Chichénica, amongst them there is a Cu made by the hand (of man) of hewn stone and masonry, and this is the principal building.

"It has over ninety steps, and the steps go all round, so as to reach to the top of it, the height of each step a little over a third of a vara high. On the summit stands a sort of tower with rooms in it.

"This Cu stands between two 'cenotes of deep water—one of them is called the 'Cenote of Sacrifice. They call the place Chichénica after an Indian, named Alquin Itza, who was living at the foot of the 'Cenote of Sacrifice.

"At this 'Cenote the Lords and Chiefs of all the provinces of Valladolid observed this custom. After having fasted for sixty days without raising their eyes during that time even to look at their wives, nor at those who brought them food, they came to the mouth of this 'Cenote and, at the break of day, they threw into it some Indian women, some belonging to each of the Lords, and they told the women that they should beg for a good year in all those things which they thought fit, and thus they cast them in unbound, but as they were thrown headlong they fell into the water, giving a great blow on it; and exactly at midday she who was able to come out, cried out loud that they should throw her a rope to drag her out with, and she arrived at the top half dead, and they made great fires round her and incensed her with Copal, and when she came to herself she said that below there were many of her nation, both men and women, who received her, and that raising her head to look at some of them, they gave her heavy blows on the neck, making her put her head down which was all under water, in which she fancied were many hollows and deeps; and in answer to the questions which the Indian girl put to them, they replied to her whether it should be a good or bad year, and whether the devil was angry with any of the Lords who had cast in the Indian girls, but these Lords already knew that if a girl did not beg to be taken out at midday it was because the devil was angry with them, and she never came out again. Then seeing that she did not come out, all the followers of that Lord and the Lord himself threw great stones into the water and with loud cries fled from the place."

Plate I. MAP OF YUCATAN AND THE COUNTRY SOUTH OF IT.

This Map is compiled from the one in Pettermann's 'Mittheilungen,' 1879, by Dr. C. H. Berendt, from Dr. Carl Sapper's map in the same journal for 1894, and from my own observations.

The country south of Peto, Chichén Itzá, and Valladolid is occupied by independent Indian tribes hostile to Mexico.



RUINED CHURCH AT PISTÉ.

GENERAL DESCRIPTION OF THE SITE OF THE RUINS.

The plan on Plate II. includes roughly a thousand yards square ground, in which are included all the principal buildings still standing, but it by no means shows the extent of ground covered by the ancient city, for small raised foundations, stone-faced terraces, heaps of squared stones, and fragments of columns can be found for a mile or more in every direction.

Amongst the ruins of the ancient city to the S.E. of the Casa de Monjas (Plate II., No. 1) stand the church and buildings of a large cattle hacienda, which, although abandoned since 1847 and much overgrown, are still in fairly good condition.

The Indian ruins had been freely used as quarries when the buildings of Pisté and the hacienda were being raised, and many well-squared blocks of stone bearing fragments of hieroglyphics and other sculpture can be found embedded in the church-walls.

Within the site of the ancient city are several patches of broken rocky ground, upon which no buildings have ever been raised, which have been carefully divided off from the level plazas by what are now low heaps of stones, 10 to 20 feet wide, not always very clearly defined. These are marked on the plan by a narrow blue line. It is difficult to determine exactly the nature of the structures of which they are the remains. In some places they seem to have been no more than enclosing walls, bounding the paved roadways which connect the level plazas; but often when the lines broaden out the presence of roofing-stones and fragments of columns show that houses must have been attached to them. The determination of the nature of these structures is rendered all the more difficult from the fact that being nearly continuous they were formerly used by the people of the hacienda to form the sides of enclosures for cattle. Indeed, the surface of the ground has been so much disturbed that it is now frequently difficult to distinguish between the remains of overturned recent walls and some of the smaller much-ruined ancient buildings.

The plan shows only the principal mounds and buildings, which could be easily distinguished by their height. Numerous other buildings must, at one time, have covered parts of the site included in the plan; but, as they were not raised on high foundations, it is difficult to trace their outlines, and their positions can only now be guessed at from that of the fragments of masonry and columns.

The chief features which distinguish the buildings of Chichén from those which I have examined in Central America are the rounded corners and nearly perpendicular sides of the raised foundations, and those which distinguish them not only from Central-American ruins, but other ruins in Yucatan, are the free use made of columns and the constant occurrence of serpent columns and balustrades.

The north of Yucatan may be described as a raised coral-reef, covered here and there with a thin coating of soil. All the surface-rock which I observed had the appearance of coral limestone, but I was told in Merida that other formations are met with at no great depth.

The surface of the country, although flat, is by no means even. When the sun was high in the heavens, the tree-tops (viewed from the raised terrace of the Casa de Monjas) appeared to stretch to the horizon on a dead level; but in the early morning, when the mist lay in the hollows and the sun's rays were almost horizontal, one could observe the roughness of the actual surface, and this unevenness was further impressed on one when jolting over the ill-made roads in a springless volan coché.

In this northern country there are no surface-rivers, and the drainage is altogether by percolation, the fresh water oozing out along the northern sea-coast. The water-supply of the inhabitants is either from "aguadas," shallow pools which dry up almost as soon as the hot weather sets in, or from "cenotes," deep holes in the limestone rock, where the water is found at some considerable depth below the surface of the ground.

These 'cenotes are very numerous; some of them are open to the air, and have steep or perpendicular sides, as is the case in the two 'cenotes at Chichén Itzá (Plate II.). In others the water can only be reached by long underground passages and caverns at considerable distance from the surface. In the 'cenote at Bolonchen, described by Stephens, the water is stated to be 450 feet below the level of the ground.

It is sometimes asserted that 'cenotes are openings marking the passage of underground rivers, and that the current is easily discernible; but this did not appear to be the case at Chichén, where I was not able to make out any trace of current, and it seems probable that many of the 'cenotes are merely receptacles of surface-drainage and percolation from the immediate neighbourhood, and have no distinct outlet.

On arrival at the ruins I found the whole site under somewhat dense vegetation. But this vegetation was of a very different character from that which clothes the Central-American ruins. Partly owing to the small depth of the soil and partly to the clearings made for food-plantations, there was an absence of forest-trees, and the wood resembled overgrown copse-wood in England rather than a tropical forest, with, however, this difference—that the saplings grew very close together and the numbers of lianas and climbers sometimes formed it into a dense jungle, and clearing was made the more difficult owing to the thorny stems both of trees and creepers.

A portion of the site we cleared entirely of all vegetation by burning the felled trees and shrubs; in other parts we found it to be an economy both of time and labour merely to clear away the undergrowth thoroughly and heap it together and burn it when dry.

As the dry season progressed, the clearing and burning of bush by the people of Pisté, in preparing their corn-plantations, enabled me to note some of the smaller and more distant mounds, and to form a better idea of the extent of the ancient city.



PISTÉ.

DETAILED DESCRIPTION OF THE RUINS.

No. 1.—The building known as the “Casa de Monjas,” or Nunnery (Plate II., No. 1), is the best preserved of the larger buildings at Chichén. (Plan and Section on Plate III.; Views and Drawings, Plates IV.—XVII.)

It consists of a solid mass of masonry, which I shall call the basement (coloured blue in the Plan), supporting a range of buildings on which another single-chambered building is superimposed. On the eastern side of the basement is a wing, with rooms opening on the level of the ground (coloured red in Plate III.), the main portion of which measures 61 feet by 45 feet, and is 25 feet high. Three other buildings (*a*, *b*, & *c*, Plate III.), two of them (*b* & *c*) in complete ruin, formed three sides of a courtyard to the south of the wing, and two detached structures (*d* & *e*, Plate III.) complete the group of buildings.

The basement is a solid mass of masonry, with slightly sloping sides and rounded corners, 165 feet in length, 89 feet broad, and 35 feet high. This measurement includes

a buttress-wall about $2\frac{1}{2}$ feet thick, which rises to the height of 10 feet, and has been added to strengthen the structure. At the height of 27 feet from the ground is a string course 1 foot 6 inches high, which projects 1 foot, and above this rises a highly decorated frieze, 3 feet 6 inches high, composed of cross-bar work alternating with grotesque heads with projecting trunk-like noses; immediately above these trunks is usually inserted a small human or grotesque face, carved on a single stone, similar to those shown in Vol. I. Plate X., *a* (Copan). A notched cornice, 1 foot 6 inches high, completes the elevation.

The basement, as we are told by Stephens, served as a quarry for the builders of the hacienda, the result being that a considerable portion of the south-west end has been removed entirely (Plates VI. and VII., *a*), and that a large breach (Plate V.) has been made on the west side of the great stairway and tunnels driven in, which are indicated by dotted lines on the Plan.

A fine stairway, about 55 feet broad, of 49 steps, arranged at the steep angle of $51^{\circ}5'$, leads to the terrace on the top of the basement. A balustrade of stonework a little over 3 feet broad on each side of the stairway supports a number of curious ornaments (one to every two steps), which must have closely resembled the trunk-like noses so frequently repeated elsewhere; unfortunately only a small number of these ornaments can be seen, and not one is entire. The most perfect I could find was broken off and lying at the foot of the stairway, and is figured in Plate III., but the dotted portion may have curved outwards. It is from this example and other slight indications that the restoration has been made in the section on Plate III.

The position of the range of buildings supported by this basement, and the breadth of the terrace which surrounds it, are clearly shown in the Plans and Photographs.

The range of buildings contains seven chambers unconnected with each other, and each opening on to the terrace. The lintels of the doorways facing south are of plain stone, but those of the doorways at the east and west ends, and also of the two chambers facing north, are carved on the outside and on the under surface with hieroglyphic inscriptions.

The three recesses on the north side, which correspond with the three central doorways on the south, also have carved lintels; and there can be no doubt that they were originally doorways which gave access to a room corresponding to the long chamber on the south side, and that this room was purposely blocked up in order to afford a secure foundation for a building to be erected above it. The inscriptions on the lintels are all much worn, and in some cases almost obliterated. Drawings of all that can still be made out are given on Plates XII. and XIII.

A small portion of the inner walls and the spring of the roof of the closed chamber can be seen where some stones and rubble have been removed, and the probable shape of the room is marked with a dotted line on the Plan.

This blocking up of lower chambers, when upper storeys were subsequently added,

seems to have been a common practice, but it has been a great mystery to native and other visitors, who have frequently broken into the "casas cerradas," believing them to contain treasure.

The chambers were all paved with cement, which, in some parts, is still fairly preserved. The walls and roofs have been coated with plaster and painted with battle-scenes and other designs; a very few small patches of these paintings still adhere to the walls, and it is just possible to make out figures of warriors 10 to 12 inches high, with shields and lances in their hands. Blue, red, orange, and green were the colours used.

In the back-wall of each room are a number of recesses nearly equal in height to the doorways.

The outside wall of this building is divided by the doorways into panels. The six panels on the north and the six on the south side are of similar design, the end panels on each side being somewhat longer than the others. Another design is employed in the decoration of the two panels on the east and the two on the west end.

The designs are remarkable in being free from the grotesque ornamentation which is such a common feature in the decoration of the other buildings.

Above this decorated wall-surface the superstructure slopes slightly inwards, and is finished off by a notched cornice.

The upper storey consists of a single chamber, with one door opening to the north, and is in a very ruinous condition. It is approached by a stairway of eighteen steps similar to the stairway already described, but slightly narrower, and with balustrades decorated with stone trunks in the same manner.

A projecting block of masonry, surmounted by a notched cornice, occupies the centre of this stairway towards the top, in the face of which is a niche probably intended to hold a sculptured figure.

On the platform in front of this upper chamber is a stone about 1 foot 6 inches high, with figures, now nearly obliterated, carved on its four sides.

It seems clear that this upper chamber was added some time after the lower range had been built, for not only was the chamber beneath it blocked up so as to afford it a secure foundation, but the ornamental panelling of the face of the lower building is to a great extent hidden by the stairway, and now forms the side-wall of the passage which passes under it.

The cap-stones of the roof of the lower chamber must have been removed in order to allow the builders to fill it up completely; and when these stones were again fixed in their position, the builders do not seem to have thought it necessary to replace the whole of the masonry above them, and, as a consequence, the floor of the upper chamber is at a somewhat lower level than the coping of the building below. This is well shown in the section (Plate III.), and a dotted line marks what was probably the profile of the lower building before the upper chamber was added.

Before describing the east wing and the detached structures which form part of this group of buildings, it will be as well to follow out the evidence of the curious growth of the main building; this can be most conveniently done by working backwards from its present condition. It has already been shown that the upper chamber and the stairway by which it is approached must have been built after the first range of chambers was completed, and could not have formed part of the original design. Turning now to the west end of the basement, it can be clearly seen in the photograph (Plate VI.) that, where a large portion of this basement has been removed, a well-built wall with ornamental frieze has been revealed; and that this inner foundation could not have been intended for the basement of the present range of chambers is evident from the fact that the chamber at the west end, and probably that at the east end also, would not have been accessible. At the present time, owing to the removal of the masonry of the basement, the western chamber can only be entered by climbing along the narrow projection of the cornice. The northern corners of this second basement can be seen on examining carefully the front view of the building (Plates IV. and V.), and its limits are marked with a dotted red line in the ground-plan (Plate III.).

Where the breach has been driven in on the west side of the great stairway a considerable portion of the second basement has been removed, and about 12 feet from the outer surface a third basement is met (about 7 feet less in height), which has been ornamented with a plainer cornice. The corner of this third basement can just be seen in Plate V., and its extent is marked by the inner dotted red line on the ground-plan. The tunnels which have been driven in from the breach are bordered on one side by the outer surface of this third basement, so that its direction is easily traced. The opposite sides of the tunnels are marked by a dotted blue line.

It is curious to note that this third basement is divided at about half its height by a projecting course of stone, which appears to have been the cornice of a still earlier foundation.

It is not probable that these numerous basements were built up for any other purpose than that of supporting some roofed buildings containing either single chambers or ranges of chambers; and thus we are led to the curious conclusion that when one of these buildings was found too small for the needs of the population or had failed to gratify their sense of propriety to the purpose for which it was designed, it was not left standing and additions made to it, but the buildings on the top were destroyed, and the basement used as a core for a larger foundation, on which new buildings were raised. The process of destruction and rebuilding may account for the many odd pieces of carved stone which can be found built up into what were intended to be flat wall-surfaces, where the plaster coating which once covered up their inequalities has now fallen away and left them open to view.

This method of enlarging the Casa de Monjas must at last have been partly aban-

doned, for the East Wing, which will now be described, is clearly an addition made after the basement had arrived at its present form. However, in this wing it is probable that the second process of enlargement was about to be carried out, for the two inner chambers had already been blocked up, doubtless with the intention of erecting another range of chambers above them.

The flooring of the five outer chambers of the east wing is about 2 feet above the level of the ground, and that of the closed inner rooms a step higher. The inner chambers have been broken into, and their contents now partially fill the outer rooms.

The outside decoration of this wing is very elaborate. The whole height of the building is about 25 feet.

On the north side (Plate XIV.) the wall-surface, up to the level of the wall-plate, is composed of alternate flat surfaces and cross-bar work. The wall-plate itself is marked by a prominent cornice, over which is a frieze of alternate cross-bar work and rosettes and huge grotesque faces, arranged somewhat irregularly. This, again, is surmounted by a notched cornice of more than usually elaborate design.

Towards the east end the faces are also used to decorate the wall-space, and the three great heads one above the other, which turn the corner, form a very curious piece of ornamentation, and it must have had a still more striking appearance when the trunk-like noses were entire. The façade of the east end (Plate XV.) is, however, the most highly-wrought piece of work of all. Here the grotesque faces are continued all over the wall-spaces and frieze. The lower string-courses are raised over the central doorway (Plate XI., *b*), so as to admit of trunk-like projections which surround the opening, and the outer surface of the lintel is covered with a hieroglyphic inscription (Plate XIII., *c*) on either side of a central grotesque mask.

Above the doorway the remains of a figure seated cross-legged, with a large feather head-dress, can be traced. An incomplete oval of radiating feathers encloses this figure, and from the sides of the oval projects a double fret. A straight-edged band marked with the wavy lines which indicate the body of the plumed serpent bounds the sides of this design, and turns inwards at right angles over the top, and the two serpents' heads facing one another can with difficulty be made out just below the projecting cornice.

The projecting line of stonework on which this central ornament rests is covered with a curious line of figures (Plate XIII., *b*), and it was supported at either end by the couching figure of a small monkey; only one of them now remains in place in a very much mutilated condition.

I am inclined to think that the doorway itself is meant to represent an open mouth, and that the trunk-like projections are intended for teeth.

The south face of this wing forms the north side of a courtyard, of which the chambers *a*, *a* (Plate III. and Plate VIII., *a*) (a later addition to the east wing) form the

west side, and on the other two sides are chambers (*b* & *c*), now reduced to rough heaps of stones, with carved stone columns in front. The ground-plans of the latter buildings can now only partly be made out by excavation.

The frieze of grotesque heads is carried for a short distance along the south side of the east wing, and the remaining wall-surfaces are plain and only relieved by the usual string-courses and notched cornice.

The ruined structures on the east side of the courtyard may have been joined with the two chambers *d, d* (Plate III.), which are still standing, but which do not merit any detailed description. These chambers, again, may have had some connection with surrounding structures, of which heaps of broken stone and débris are all that remain.

To return once more to the growth of this group of buildings, we may consider them to have been raised in the following order:—

1. The lower half of the third basement—no trace of stairway or chambers remaining.
2. The addition of the upper part of the third basement—no trace of stairway or chambers remaining.
3. The second basement, accessible by the present stairway or possibly by a narrower stairway in the same position—chambers probably removed, but possibly remaining as the two long chambers of present lower range.
4. Enlargement of the second basement, and erection of the present lower ranges of chambers.
5. Filling-up of northern long chamber, and erection of upper stairway and upper chamber.
6. Erection of east wing.
7. Addition of chambers *a, a*. (There is clear indication, from the joint of the wall, that *a, a* were added after the east wing was built.)
8. Filling-up of central chambers of east wing with intention of erecting upper storey—not carried out.

Of course the east wing may have been built before or at the same time as the upper stairway and chamber, and the comparative date of the surrounding structures cannot be ascertained; but the consecutive structure of Nos. 1 to 5 and the subsequent aggregations show that the site must have been one of special sanctity or importance during a considerable number of years.

Before leaving the group of the Monjas, there is one small but very elaborately decorated building to be noticed, the detached single-chambered building (Plate III., *e*).

The photographs of this building (Plates XVI. and XVII.) are so good that there is no need to describe the decoration in detail. Its general appearance would be much improved if the earth which has accumulated around its base to the depth of about 2 feet were to be cleared away.

The central grotesque face over the doorway appears to have had a small figure seated above its nose. Part of the head-dress of this figure is all that now remains.

On either side of this central face are two squares, each containing two seated figures facing inwards, all headless and much mutilated. The inside figure on the southern square is that of a humanized turtle, and the figure on the northern square that of a humanized alligator. The two other figures are also grotesque—half human, half animal; but their exact nature cannot be made out.

The building is capped by the notched cornice with an additional band of ornament in the lower angle of the cornice, similar to that on the east wing.

On the west side this cornice is surmounted by a highly decorated wall ornamented with three huge grotesque faces of unequal sizes and very irregularly put together, giving the impression that they have been built up of previously-used material. This wall extended along the west face of the building only, and is decorated with cross-bar work on its east side.

The single chamber in the interior of the building has apparently been covered with mural paintings; and the remains of a line of hieroglyphs running round the top of the wall, moulded in plaster and painted, can just be made out.

A rough line of stones, possibly the remains of a wall, runs from the north-west corner of the Casa de Monjas to a small ruined foundation to the north.

No. 2.—Between the Casa de Monjas and the building called Caracol, from its supposed resemblance to a snail-shell (Plate II., No. 5), there are some small heaps of stones and broken fragments of columns, which mark the remains of buildings raised on low terraces or foundations. Of these mounds, No. 2 is perhaps the most distinct, and is still about 6 feet in height, and is approached by steps on the east side. The bottom of the balustrade of this stairway is fashioned into a serpent's head, a form of decoration of frequent occurrence in these ruins. (*Cf.* Plate XXV., *a.*)

No. 3.—To the east of this mound is another of more importance (Plate II., No. 3). On the west side a stairway with balustrades ending in serpents' heads leads up to a terrace (about 10 feet high), from which rises what must have once been a roofed building, but is now merely a heap of stones. The total height of the mound is now 23 feet.

No. 4.—Between this building and the Ak at 'Cib (Plate II., No. 4) are, again, traces of buildings which can with difficulty be made out. The Ak at 'Cib itself (Plates XVIII. and XIX.) is not a particularly interesting building, but its smooth wall-surfaces, free from all decoration except notched wall-plate and cornice, would probably have long withstood the attacks of the weather and the vegetation had it not been systematically robbed of its facing-stones, and had not holes been wantonly broken through the inner

walls and the rough surfaces left exposed. The total length of the building is 170 feet.

The two central chambers on the west side (Plan on Plate XIX.) appear to be the earliest part of the building, and the many-chambered wings later additions. The solid block in the centre is difficult to understand; it possibly contains blocked-up chambers, but I was not able to find any trace of them where the masonry has been broken into. The eastern part of this mass of masonry is clearly of still later construction than the wings, as the notched wall-plate and cornice which ornaments the wings can be detected passing behind it. There is no stairway or other means of ascent to the roof of the building; and the only conclusion I can come to is that it was intended to add an upper storey on the solid basement, and that the design was afterwards abandoned.

The only other point of interest in this structure is the carved lintel (Plate XIX.) over the inner doorway, marked with an **X** on the ground-plan, from which the building takes its name, "Ak at 'Cib," which means "the writing in the dark."

No. 5.—The next building to be described, the Caracol (= the snail-shell) (Plate II., No. 5; Plans and Sections on Plate XX.; and views, Plates XXI. and XXII., *a*), which, unfortunately, is in a much-ruined condition, is raised on a double foundation. The lower foundation or basement is nearly, if not quite, rectangular, and measures 229 by 166 feet, and is 21 feet high; the corners are rounded, and the sides slope inwards and are capped by a notched cornice.

On the north-west side a few broad steps lead up to the main stairway by which the first terrace is reached.

To the south of this stairway can be traced a fragmentary building attached to the basement, which it is not easy to understand. It apparently consisted of two chambers, and was approached by a stairway on the north-west side. The floors of the chambers are about on a level with the bottom of the notched cornice of the basement of the Caracol, so that this building, when complete, must have much exceeded that basement in height. Thinking it might have served as a portico, I examined the inner chamber for traces of steps leading to the terrace, but none could be found. Neither could any distinct traces of a doorway be seen in the foundation of the wall dividing the two chambers, although there can be little doubt that such a doorway must have existed. As, however, only a few inches of the height of the walls are now discernible, it is difficult to come to any exact conclusions.

The upper terrace, on which the Caracol itself stands, is 13 feet high, and, like the lower foundation, the wall is capped with a notched cornice. The west side measures 74 feet, but the east side exceeds it in length by 8 feet. The south side is 67 feet long, and the north side somewhat longer.

Not only are the angles and sides of this upper foundation unequal, but none of its sides are parallel to the sides of the lower foundation. The stairway, by which the terrace is reached, is on the west side.

The balustrade on each side of it is in the shape of the twined body of a rattlesnake, the head and tail resting on the ground.

Near the top of the stairway, but not quite in the centre, is a projecting block of masonry, with a niche probably intended for a sculptured figure.

The building which these foundations support is circular, and measures about 36 feet in diameter. Four doorways, nearly equidistant from one another, give access to a circular chamber, but not one of these doorways directly faces the stairway or the sides of the foundation.

Alternating with these outer doorways, four others lead through the inner wall to another somewhat smaller circular chamber, in the centre of which stands a solid core of masonry between seven and eight feet in diameter. The vault of the outer chamber is divided into four sections by four transverse walls resting on stone lintels which span the chamber at the level of the wall-plates.

These divisions of the vault occur also in the inner chamber, but the dividing walls are supported by rough wooden beams in place of stone lintels. Both chambers retain a very few traces of wall-paintings.

The ground-plan and section of the building is shown in Plate XX.

In the upper part of the central core of masonry, where it trends outwards to form one side of the vault of the inner chamber, at about the height of 12 feet from the ground (above the spot marked "X" in the ground-plan), there is a small opening which apparently gives access to a winding passage or stairway passing round an inner core of masonry. It may have been possible for a small man to ascend the stairway, but owing to the falling and fallen stones, it is now dangerous for anyone to make the attempt to do so.

The stairway is broken away after one spiral is nearly completed, and now ends in an opening which can be seen amongst the broken masonry. It seems probable that it formerly connected with one of the small cross-passages in the superstructure.

The outer wall-surface of the building was quite plain and was surmounted by a heavy double notched cornice. Above this the wall appears to have sloped inwards and was probably capped by another notched cornice. Above this, again, was a level platform, on which stood an upper storey furnished with what looked like six small doorways facing outwards. Of these the doorway immediately over the lower doorway "A" is the entrance to a small passage, 3 feet high, which probably passed right across the building to a doorway on the other side.

Whether the other small doorways gave entrances to similar passages I could not satisfactorily make out, but am inclined to think that they did not and that they were merely ornamental recesses.

Above the notched cornice, which surmounts these small doorways, the masonry is now reduced to a confused heap of stones.

As can be seen from the photographs, which give views of the best preserved parts, the building is in a very ruinous condition. The stones on the upper portion are loose, and it was with no little difficulty and risk that measurements could be taken.

Where the masonry has fallen, the probable outline of the building is marked in dotted lines on the plan and section.

No. 6.—The next building to be described (Plate II., No. 6) is in a still more ruined condition. A flight of 15 steps leads to a terrace, 10 feet high and about 55 feet square, on the back of which stands the remains of a building. Two columns originally supported the roof in front, but as the architrave has cracked with the weight of the roof, a third support has since been added.

The front wall of this building only is standing, the remainder is broken away, but enough is left to enable the ground-plans to be traced and shows it to have been somewhat similar in plan to the temples at Palenque.

From the back wall two short walls ran out and turned at right angles to enclose that which, judging from the Palenque plan, was a sanctuary, but I could find no trace of inscribed stones amongst the débris.

To the south of the terrace there projects a tumbled heap of stones now about 4 feet high, which may at one time have supported a roofed building.

In front of No. 6, but more to the north, is a mound 85 feet long and 16 feet high, which probably supported a double-chambered house. The bases of six columns can still be seen on the west side.

No. 7.—Directly to the west of this is the building commonly known as the Casa Colorada (Plate II., No. 7, plan and section on Plate XXII., views Plate XXIII.), which is still in good condition and in which I took up my quarters until the Casa de las Monjas was cleared. On the west side a stairway of 18 steps leads to the top of a foundation of the usual shape and 22 feet high. This foundation and the building which stands on it are so well shown in the photographs, that it needs little description. The wall-surfaces of the building are plain and ornamented only with the usual notched cornices. On the top of the building along the front is a wall highly decorated with grotesque faces and frets, and another still higher wall running parallel to it, pierced by many small openings and decorated with notched cornices, stands immediately over the wall dividing the outer from the inner chambers. These superstructures not only add considerably to the appearance of the buildings, but must also have added greatly to the security of the structure by pinning down with their weight the ends of the roofing-stones, and it was for this reason no doubt that such superstructures were also in common use both at Palenque and Menché. In this instance it is only the

back wall of the building, which is furnished with no such superstructure, that is giving way.

The rigid stone rings which stand out from the sides of the building from underneath the upper cornice were probably used to support an awning, and the square holes along the top of the front wall may have held wooden beams for the same purpose.

In the interior of the outer chamber of the Casa Colorada is the hieroglyphic inscription figured in Plate XXIV.; it runs from end to end of the wall just above the inner doorways.

Four or five Sapote wood beams are fixed across the vault, their ends imbedded in the masonry.

To the north of the foundation a mound of stones runs out in a manner similar to that described as attached to No. 6, and it naturally suggests itself that if the principal buildings were temples these lower buildings attached to them may have been for the accommodation of attendants.

No. 8.—At right angles to the face of the Casa Colorada is a low foundation which must have supported a single-chambered house with eight columns along its front. At the west end of this building is another foundation (Plate II., No. 8) similar to that of the Casa Colorada.

A stairway of 15 steps leads up to the terrace, at the back of which stands a small half-ruined building divided transversely into two chambers.

In front of the stairway are the remains of some rectangular terraces, one to two feet high, on which are to be seen the remains of two "picotes," single upright stones a few feet high, with their edges rounded off, supported on a square basement. Further on to the south is a long mound with traces of columns and steps, of which only a rough measurement was taken.

Returning now to the north end of the mound between numbers 6 and 7, traces of two parallel walls can be just made out, marking the sides of a roadway which leads towards the temple No. 9. At the distance of 250 feet these walls turning to the right and left broaden out and become mere confused heaps of stones.

The wall turning to the west ends in the ruins of some structures, amongst which remains of house-walls and columns can still be seen. The wall turning to the east runs in that direction for about 230 feet, then again turns nearly at right angles and separates the level plain from the rough ground to the east of it. This plain or plaza is enclosed on the north and west by similar long heaps of stones, which vary in height and breadth, and, as already explained, may in some places be the remains of walls and in others of narrow buildings.

No. 9.—Standing almost in the centre of this Plaza is a square-based truncated

pyramid (Plate II., No. 9), which was ascended on all four sides by projecting stairways and formerly supported a temple on its summit.

The whole structure is now much ruined. Part of the stairway on the east side and the remains of the serpent-columns are shown in Plate XXV., *a* & *b*.

The balustrade, like that of the Caracol, is formed of the twisted body of a serpent. The head rests on the ground and the body must have curved up the balustrade and down again so that the rattles of the tail lie just above the head.

All four stairways were similarly ornamented. On the summit of the mound (plan on Plate XXIV.) portions of the square columns which supported the roof of the temple are still in position; but the walls have almost entirely disappeared, their foundations could, however, be traced without much difficulty. The plan of the building is almost identical with that of the Castillo, which will be fully described hereafter, and such slight differences as there are between the ground-plans of the two buildings will be then noted.

Mention may, however, here be made of two narrow blocks of stone, about five feet high, which are still standing (*a, a*), on which there are faint traces of hieroglyphic inscriptions, and which must have originally been fixed in the back wall of the building.

Thirty feet to the east of No. 9 is a square terrace raised about 2 feet from the ground, with a low heap of stones on the top of it, which may possibly be the remains of an altar.

No. 10.—Four feet to the east of this terrace is a mound (Plate II., No. 10) 45 feet square and 12 feet high, furnished with four stairways with serpent-head balustrades, as though this structure were a miniature copy of No. 9. I was not, however, able to find any trace of a building on the top of it.

About the same distance again to the east is another mound, 23 feet square and 7 feet high, with some fragments of columns on the top of it; but the whole structure was too much ruined for a ground-plan to be made out.

No. 11.—Next in order comes one of the most interesting groups of buildings at Chichén, the Tlachtli Court or Great Ball Court and the Temples attached to it (No. 11, Plate II., and plans on Plates XXVI. and XXVII.). The main walls of the court are parallel (see Plate XXVIII.), and each measures 272 feet in length, and they stand at a distance of 119 feet apart.

There is a temple (A, Plate XXVI.) built on the south end of the east wall, which will be fully described hereafter. In all other respects the following description is applicable to both the east and west sides of the Court.

A terrace 5 feet 3 inches high, with a sloping face marked "a" in the plan, projects 10 feet from the wall into the Court and is continued into a broad platform beyond the wall at each end. The perpendicular face of the main wall rises to the height of 22 feet from this terrace, or 27 feet in all from the ground. The top of the wall forms a level platform about 16 feet 6 inches broad. On the outer side the wall slopes downward at an angle of about 52°. All traces of the stairways, which must have been placed on this sloping side, have disappeared.

On the top of the west wall are the remains of three small structures (*b*, *b*), each consisting of two parallel walls, perpendicular on the inner side, but thicker at the top than at the bottom, so that each wall has the appearance of leaning outward. The passage between these walls had apparently been roofed over and would have afforded room for one person to be seated in it. Two similar structures are found in corresponding positions on the east wall, but the site corresponding to the third at the south end is occupied by the Temple (A, Plate XXVI.). From the position of these structures at the boundaries of the Court and exactly over the rings, I have little doubt that they were used for markers' or umpires' seats.

A large stone ring was fixed in the face of each wall about three feet from the top; these rings were probably intended to divide the length of wall evenly, but my measurements make them about two feet nearer to the south than to the north end of the Court.

Each ring with the tenon to fix it in the wall is carved from a single block of stone; the ring itself is 11 inches thick and 4 feet in diameter, and the hole in the centre measures 1 foot 6 inches across. The ring on the east wall is still in position, and can be well seen in Plate XXX.; the opposite ring has fallen, and a near view of it is given in Plate XXIX., *a*, showing the ornamentation of twined serpents, which is also repeated on the other side and on the flat rim.

At the ends of the Tennis Court area are the walls marked X, X in the plan, which are now reduced to tumbled heaps of stone, and almost in the centre of these walls, facing the Court at either end, are the single-chambered Temples B and C. B is much ruined, but portions of six sculptured pillars are still in place. C is smaller and raised on a somewhat higher foundation, and the two columns as well as the whole

of the interior of the chamber have been covered with sculpture similar to that which will be hereafter described in chamber E, but unfortunately it is too much weather-worn for the designs to be made out. A view of this temple is given in Plate XXIX., *b*.

The game which was played in this magnificent court was, no doubt, much the same as the Mexican *Tlachtli*, which is thus described by Herrera:—"The game was called '*Tlachtli*,' which is the same as '*Trinquete*' in Spanish. The ball was made of the gum from a tree which grows in the hot country. This tree, when tapped, exudes some large white drops, which soon congeal and when mixed and kneaded become as black as pitch; of this material the balls are made, and, although heavy and hard to the hand, they bound and rebound as lightly as footballs, and are indeed better, as there is no need to inflate them. They do not play for 'chases' (*al chaçar*), but to make a winning strike (*al vencer*), as in the game of *Chueca*—that is, to strike the ball against or to hit it over the wall which the opposite party defend. The ball may be struck with any part of the body, either such part as is most convenient or such as each player is most skilful in using. Sometimes it is arranged that it should count against any player who touches the ball otherwise than with his hip, for this is considered by them to show the greatest skill, and on this account they would wear a piece of stiff raw hide over the hips, so that the ball might better rebound. The ball might be struck as long as it bounded, and it made many bounds one after the other, as though it were alive. They played in parties, so many on each side, and for such a stake as a parcel of cotton cloths (*una carga de mantas*), more or less, according to the wealth of the players. They also played for articles of gold and for feathers, and at times staked their own persons. The place where they played was a court on the level of the ground (*sala baja*), long, narrow, and high, but wider above than below, and higher at the sides than at the ends (*fronteras*). So that it should be better to play in, the court was well cemented, and the walls and floors made quite smooth. In the side walls were fixed two stones like millstones, with a hole pierced through the middle, through which there was just room for the ball to pass, and the player who hit the ball through the hole won the game; and as this was a rare victory, which few gained, by the ancient custom and law of the game, the victor had a right to the mantles of all the spectators; and when the ball passed through the hole it was an amusing sight to see all the onlookers take to flight with much merriment and laughter in the hope of saving their mantles, which others clutched on behalf of the victor, who had to make certain sacrifices to the Idol of *Trinquete* and of the stone (ring) through which the ball had passed. To those who saw the feat performed for the first time it seemed like a miracle, and they said that a player who had such good luck would become a thief or an adulterer, or would die soon. And the memory of such a victory lasted many days, until it was followed by another, which put it out of mind. Every *Trinquete*

court was a temple*, and at midnight on a lucky day two Idols—one of the game and one of the ball—were placed on the top of the lower walls with certain ceremonies and witchcraft; and in the middle of the floor they sang songs and performed other ceremonies; then a priest from the great temple with other holy men came to bless the court. Certain words were said, the ball was thrown four times, as in the game, and after such ceremonies the court became consecrated and fit to play in, but not before."

At the south end of the east wall of the Court the foundation is carried out to the eastwards for the distance of about 16 feet, so as to give space for the erection of Temple A, Plate XXVI., of which an enlarged plan and section is given on Plate XXVII. The surface of the sloping sides of this foundation is so much broken away that the form of it cannot now be satisfactorily made out. The rounded stones at the corners can still be seen and are marked in the plan.

From the general appearance of the ruined masonry on the south side, it may be supposed that a stairway here gave access to the terrace (*d*) on the top of the wall, and such a stairway (Plate XXVII., *c*) has been marked in broken lines on the plan, although no trace of the steps themselves now remains.

The approach to the Temple must have been by the two small stairways, *e*, *e*; but no trace of the steps remains on the surface of the rough sloping rubble, and the probable position of the steps is shown in broken lines. The more important stairway, *f*, which runs along the front of the building, could not possibly have given access to it, as the steps commence at the top of the lofty wall of the Court, and I can attribute no other purpose to them than that they may have been used as seats by spectators of the game. This stairway, *f*, has a broad balustrade ornamented with a design which is repeated on the outside wall of the chamber E, and will be figured when that building is described.

The walls of the Temple are rather more than 4 feet thick, and on the outside are strengthened by a buttress (*g*, *g*) which rises to the height of 4 feet 7 inches.

Beams of wood were doubtless used as architraves to span the open front of the temple, and were supported where they joined the side walls by two square pilasters (*h*, *h*) and in the intervening space by two massive columns (*j*, *j*).

The pilasters *h*, *h* are ornamented on three sides with carvings of human figures and grotesque masks (Plate XXXVIII., *h* 1-6). The top stone of each pilaster is missing; but the original height is easily ascertained, as a square notch cut in each wall shows where the ends of the beams were fixed which lay evenly above the tops of the pilasters and columns.

The columns (*j*, *j*) are 3 feet 4 inches in diameter, and the bases, which measure in total length 7 feet, are fashioned into the resemblance of huge serpents' heads. (See

* The smaller courts appear to have had the ends closed.

Plates XXX. to XXXIV., *a.*) A forked tongue, carved on a separate stone, projected for a distance of 2 feet 6 inches in front of each head. These tongues are not now in position, but were found amongst the débris at the foot of the wall. The southern column, including the serpent's head, is formed of two blocks of stone, the northern column of three blocks. These columns rise to a height of only 7 feet 6 inches, and were surmounted by a most extraordinary form of capital, consisting of two limbs nearly at right angles one to another, cut from a single block of stone: one limb covered the top of the column and formed the capital supporting the wooden architrave, and the other turned up in front of the building and was carved on its sides and face to represent the rattles of the rattlesnake. The effect gained from this arrangement is well shown in the restoration of the building on Plate XXXII.



I had for some time been greatly puzzled by finding similar stones lying at the bottom of the mounds (one can be seen in Plate XXV., *a.*, at the foot of the stairway). The markings on them were clearly meant to represent the tails of rattlesnakes, but in no instance did I find one in position, and it was no easy matter to determine whence they had fallen. The proper position at the top of the columns at last occurred to me, but there was nothing beyond probability to guide me in determining if the tail should be turned up or down; eventually one was found with very faint traces of human figures carved on one side, and the position of these figures was conclusive evidence that the tails were turned upward. However, whilst those investigations were going on, no trace had been seen of any such capitals belonging to the two serpent columns of the great Ball Court Temple; but, having formed our conclusions from the other examples, we set to work and unearthed from the débris at the foot of the wall the huge fragments of two such capitals, from which accurate measurements were taken; and the thickness of those capitals, when added to the height of the columns, was found to bring their upper surface exactly to the level of the top of the pilasters *h, h*, so that the wooden lintel would lie evenly over them.

The form of the capitals must almost certainly have ensured the speedy destruction of the building, for any decay in the wooden beams must have thrown the weight of the roof outwards and made the upright tail into the arm of a lever to overturn the whole mass. The Castillo (No. 15) is the only building constructed on this plan of which the front is still standing, and in that case some stones falling from above had knocked off both the upturned tails as well as the heads of the snakes, and so restored the equilibrium; but this breakage had so thoroughly destroyed the character of the columns and their capitals that they afforded me little help in making out the original design.

The outside wall surfaces of the Temple are divided into panels, and these were probably decorated with paintings. At the level of the spring of the roof is a string course ornamented with intertwined plumed serpents; the head of one of these serpents could be made out on the west corner-stone on the north side, but this detail is lost in the photograph. Above this is a sunken frieze with a procession of jaguars between round shields; above this another string course of twined serpents. Above this two courses are decorated with a large plumed serpent; the body of the serpent is carried from one course to the other, the intervening spaces being filled up with circles and short pilasters. I have endeavoured to show the decoration of this temple more clearly by the restoration on Plate XXXII.

This restoration has been effected by carrying along the front the ornament which is still visible on the sides and back of the building, so as to combine it with a view of the rattlesnake columns. It is possible, and indeed probable, that the ornamentations of the front and sides of the building were not precisely similar, but by adopting this plan no ornament is introduced which is not still to be seen on the building or which is not in keeping with the general design.

The open fretwork round the top of the building is in part problematical. The edges of the flat top of the building are so much broken away that no trace of such ornament could be found; but, as will be explained hereafter, there is good evidence that such a fretwork decorated the top of the Castillo, and this restoration is made from what was learnt from the study of that building.

The central ornament, composed of three crossed arrows bound with a ribbon, was found among the fallen stones in front of the temple, and a similar ornament was lying on the ground on the east side. There is a tenon at the bottom of this ornament, and the detail of the ornament is carved on one side only, which leads one to suppose that the tenon was intended to be embedded in a horizontal surface, and the position assigned to the ornament in the drawing seems to me a most probable one. Several fragments of similar ornaments were found amongst the rubbish surrounding other ruined buildings.

There are sufficient traces to show that the whole of the exterior of this building was at one time brilliantly coloured, and it must then have presented a most striking appearance.

The wall-surfaces of the interior of the building have also been decorated with painted designs, but it is only in the inner chamber, where the roof is fairly water-tight, that the paintings have escaped total destruction.

The wall dividing the two chambers of the Temple is 4 feet 6 inches in thickness. The lintel of the doorway leading to the inner chamber is formed of several beams of wood still in a fair state of preservation. Two pilasters (*k*, *k*) supported an under-lintel carved on its three exposed surfaces. The carving on the lower surface is destroyed;

the outer surface and the principal part of the inner surface I moulded in paper, and on Plate XXXV. is a drawing of all that can be made out of the designs*.

The arrangement of the pilasters and jambs gives five flat surfaces on either side of the doorway (*k, k*, Plate XXVII.), all of which were highly decorated and are figured in Plates XXXVI.-XXXVIII. Part of the inner jamb on the north side has fallen away. The inner jamb of the south side was unfortunately not moulded, as moulding-paper ran short. These sculptures are so much weather-stained that it was difficult to get satisfactory photographs of them, the discoloration of the stone almost entirely hiding the design, as can be seen in the photograph on Plate XXXIV., *b*. No washing or scrubbing of the stone had any beneficial effect, and the very successful photographs given in Plates XXXVI. and XXXVII. were only obtained, after many experiments, by washing the stone over with a distemper made from a coloured earth and finely-powdered plaster.

In writing the description of his visit to this temple in 1843, Stephens says:—

“Between these jambs we enter an inner chamber, the walls and ceilings of which are covered, from the floor to the peak of the arch, with designs in painting, representing, in bright and vivid colours, human figures, battles, houses, trees, and scenes of domestic life, and conspicuous on one of the walls is a large canoe; but the first feeling of gratified surprise was followed by heavy disappointment, for the whole was mutilated and disfigured. In some places the plaster was broken off; in every part deep and malignant scratches appeared in the walls, and while individual figures were entire, the connection of the subjects could not be made out.”

If such were the condition of the walls in 1843 I expected to find very little remaining in 1888. However, although much of the plaster had fallen since the time of Stephens's visit, and the floor was heaped high with fragments of plaster and rubbish, and although the paintings had been further ruthlessly damaged by visitors from the neighbouring towns and villages, who, with the point of a charred stick, had written their names in large letters all over the walls, yet there is still so much remaining of great interest that I deeply regret not having provided myself with materials for making tracings of all that is sufficiently distinct.

The fragments which I am now able to reproduce were traced on thin bank-post letter-paper, then transferred to the linen-backed paper which had been prepared for my large plane-table, and were coloured on the spot.

Plate XXXIX. shows a picture of a human sacrifice, which was painted on the space between the top of the doorway and the spring of the roof. Unfortunately the heads of the figures have all disappeared, as they were painted on the sloping surface of the roof itself, whence all the plaster has fallen away. The body of the victim is stretched backward, over a large stone, an attendant kneels to grasp its ankles, while what I venture to call the serpent-priest stands over the body, and is probably about

* The grotesque snakes' heads are omitted in the drawing Plate XXXV., *b*.

to cut out the heart. The green and yellow band in front of the priest is undoubtedly part of the snake, which appears always to accompany the figure of the serpent-priest. (Compare Plates XLI. and XLIII., *c* and *d*.) Another attendant holds a sort of banner in his hand, and behind him stands a man whose body bears tattoo-marks, and who appears to be also a victim for sacrifice and is being pushed forward by an attendant wearing a short white garment and sandals. Three other figures are shown in the Plate, which are possibly those of two other victims and a third attendant.

Plate XL. shows a small portion of the picture painted on the east wall (reduced about a third). On the right is the end of a house with the red column or post of the portico, under which is seated a female figure (not shown in the Plate).

Plate XLI. gives what remains of the picture of a battle which covered a considerable portion of the wall to the south of the doorway. Alas! I was only able to trace the outline, and had neither time nor material for copying the colours. The Plate is $\frac{1}{16}$ of the size of the original drawing. The attacking party is led by the priest or warrior under the protection of the plumed serpent. The town or village which is being defended is composed of houses with thatch-roofs. The roof of each house usually projects at one end beyond the walls so as to form a sort of portico or porch, which is supported by two posts. The women who are standing among the houses are apparently urging on their defenders or deploring their losses. Three of them have curious bulbous excrescences attached to their head-dresses or to the backs of their necks. The weapons used by the warriors are the short spears, the "varas tostadas" of the old Spanish writers, impelled with the aid of an atlatl or throwing-stick. The warriors carry shields bearing devices which are so much worn that they could not be made out, and over the shield there usually hung a feather cloak. The feather cloak appears to have been painted on after the outline of the shield had been drawn, and in some cases the feather-work has been almost entirely worn away, leaving the outline of the shield still distinct. A similar method of first outlining the figure and then adding all the details of dress and ornament is common to all the stucco-work throughout Central America, and is particularly noticeable at Palenque.

At the base of the foundation of the Ball Court Temple, on the east side, is the chamber marked E (see Plates XXVII., XLII., and XLIII.). The outer half of the roof had fallen, and the débris had filled up the chamber to the top of the square columns. The removal of the fallen stones and rubbish was heavy work, but the full view of the sculptured walls well repaid the labour. The whole of the surface of the stone in the interior of the chamber, as well as the exposed ends of the walls and the square pillars which supported the roof, have been covered with carving in low relief, and this carved surface was at one time probably coated with a thin layer of plaster and painted.

What remains of this decoration, so far as it can be satisfactorily made out from photographs and casts of the originals, is figured on Plates XLV. to LI. The end

walls are supported by buttresses (1, 1), and were probably without decoration on the outer side; but the exposed surfaces at m, m were adorned with sculptures shown in Plate LI. The drawing on Plate LI. is taken from the carving on the face m_1 , supplemented by two fragments (e and f) belonging to m_2 , and the probable connection of the design is indicated in dotted lines.

There is no doubt that the general design on m_2 was similar to that on m_1 , but the figures were different: unfortunately the face only of the figure on m_2 could be discovered amongst the fallen stones; this is given on Plate LI. The figure on m_1 is encased in a sort of armour made from the shell of a tortoise or turtle, and may have some connection with the turtle-backed figure on the "Inglesia" shown in Plate XVII., and referred to on p. 19. The lower panel, on which the figure stands, represents a human head issuing from the mouth of a plumed dragon; the design is similar to that on the balustrade of the stairway (Plate XXVII., f) in front of the Ball Court Temple, and is repeated elsewhere amongst the ruined buildings (see Plate LII., d and e).

The top stones of the two square pillars (Plate XLIII., c and d) which supported the roof of the building have unfortunately been displaced, and one of the displaced stones which was found among the débris was so much weather-worn that the design on it could not be made out. Reference to the photographs on Plate XLIII. will show that the base of each face of the pillars is decorated with a grotesque face to which is attached the water-plant and its accompanying fish, turtles, and aquatic birds. (See also Vol. IV., Plate XCIII., c .) On the south pillar the figure standing on this base is clad in the turtle-shell armour similar to that shown on Plate LI. The figure on the north pillar is clothed in a skirt ornamented with discs and crossed bones. Behind each figure is shown the curved body of a snake.


Between the columns was an overturned figure of a puma, very crudely carved, which may have been used as an altar for offerings. It is seen restored to its place in Plate XLIII.

Plate XLIV. gives a key-plan of the decoration of the interior of the chamber, and the following Plates give detail drawings of the sculptures. An ornamental border and five rows of human figures occupy the whole of the space. The ornamental border in which the water-plant is the principal feature runs round the bottom of the wall. A plain string-course separates this border from a row of elaborately decorated processional figures in line A, each figure, with one exception, bearing a spear in its hand. The masks, head-dresses, shields, and ornaments of these figures deserve most careful examination. From the mouth of each there issues a scroll which may indicate speech, and above each head is a sign which possibly stands for the name or totem of each individual, or the family which he represents. (See also Plate XXXVIII.) The five lines of figures are separated from one another by string-courses formed of the entwined bodies of snakes.

The middle figure in line B appears to be the serpent-priest, and the body of the

snake, which rises behind him, crosses the string-course so that its head occupies part of line C. The figure in the middle of the line D is also a serpent-priest (or warrior, for he carries atlatl and spears in his hands). In the top line E the central figure of chief or deity, to whom the others are paying reverence, is seated on a jaguar throne and surrounded by an aureola or halo of rays similar to those surrounding the figures on the lintel (Plate XXXV.), where the same chief or deity is represented. Almost all the other figures, except two on each side of the serpent-priest on line B, carry atlatl and spears.

It might be suggested that the figure within the halo is the great serpent-god whose representatives on earth, the warrior and the priest, are distinguished by the presence of the snakes which accompany them, and that the grotesque mask whence issues the water-plant with its fish and birds is in some way symbolical of fecundity.

The ornament  so frequently worn on the neck or in the head-dress appears to me to be derived from the figure of a bird with outstretched wings and tail. The quilted or feathered sleeve or cloak sometimes worn on the left arm must have been intended for the protection of the body of the warrior when he was throwing his spears, and the quilted or feathered bracelet on the right wrist probably assisted the adjustment of the atlatl when the spear was being poised. Whether the discs, which in so many instances appear to be attached to the waist-band, are war-shields it is somewhat difficult to determine; it seems just possible, bearing in mind the nearness of this chamber to the Great Ball Court, that they are the pieces of hide stretched over the loins which are mentioned in Herrera's description of the game. The little bags held in the hands of the warriors figured on Plate XXXVIII. are suggestive of slings. It is worth noting that no bows and arrows are to be seen on any of the sculptures.

To the east of the Tennis Court is a long low terrace, *No.* 12. The stone facing all round this terrace is decorated with scrolls carved in medium relief. This decoration is, however, not continued round the projection of the terrace to the east, where the masonry is somewhat higher and is approached by a few steps.

Close to this terrace is the small mound *No.* 13, which is now about 12 feet high, and is approached on all sides by stairways with serpent-head balustrades. The sides of the mound were perpendicular, and were decorated with figures of jaguars, vultures, &c. (Plate LII, *a* and *b*). Near by is lying a figure (Plate LII, *c*) which appears to represent a dead jaguar. It is not possible to give an accurate description of this mound, as it had been the site of one of Dr. Le Plougeon's excavations, and I had not time to remove the mass of stones and earth which had been dug out from the centre and lay heaped up against the sides. But it was, I believe, in this mound that Dr. Le Plougeon found the stone figure which he names Chac-Mol, which is now in the Museum at Mexico. Similar figures are still to be seen in front of the serpent columns

of temples 18 and 25, Plate LX. (see also Plates LXIII. and LXV., *b*), and the fragments of a similar figure, measuring 2 feet 2 inches from the pedestal to the bend of the knee, were found lying a short distance to the north of mound No. 12. Each of these figures grasps with its hands the rim of a cup or bowl cut in the stone, and from the position of these figures at the entrance of the temples it seems probable that the bowls were used as receptacles for offerings or brasiers in which to burn incense.

No. 14, to the east of the last mound described, is also the scene of Dr. Le Plongeon's excavations. It is much to be hoped that this mound was properly cleared, and a series of photographs taken of it before the excavation was commenced. It is very difficult now to make out its sculptural decorations, as the whole of the centre has been excavated and the stones and earth thrown over the sides, and it would have been the work of many days to have removed the large heaps of *débris*. The height of the mound is 14 feet, and the platform at the top, which was accessible on all four sides by stairways of 12 steps, had apparently been covered with a level pavement of large flat stones. I was unable to make out whether the stairways had serpent-head balustrades. The side walls were buttressed to the height of about 2 feet, and above this the slabs were elaborately sculptured, the same design, so far as I could ascertain, being repeated on all eight sections, and consisting of ribbon plaits and a full-faced view of a plumed dragon with a human head issuing from its open jaw. Above these slabs was a string-course which was surmounted by a frieze on which was sculptured a huge plumed serpent's body and some figures of fish. These designs are in part shown in Plate LII., *d* and *e*.

Some of the contents of this mound, dug out by Dr. Le Plongeon, are figured on Plate LIII. in the position in which he left them. They consist of a large number of sugar-loaf-shaped stones about 3 feet 6 inches long and 6 inches in greatest diameter, a circular stone cist 1 foot 10 inches high and 2 feet in diameter, with a plain stone lid and a considerable number of plumed serpents' heads. How these sculptured stones came to be buried in the mound is a mystery; the serpents have clearly at one time formed the external decoration of some building, as the end of almost every one of the stones is provided with a tenon to fix it into masonry; but unless Dr. Le Plongeon can afford information on the subject the use of these curious carvings is likely to remain a mystery. There can be little doubt that Nos. 13 and 14 are the two small paved "theatros de Cantería" mentioned by Landa.

About a hundred yards to the North of No. 14 mound there is an opening in the long line of masonry which runs eastward from the back of the temple C of the Ball Court group, whence a passage 300 yards long between the remains of two walls leads to the sacred 'Cenote.

The sides of this 'Cenote, Plate LIV., are almost perpendicular, and it is no doubt the 'Cenote of sacrifice mentioned in the Valladolid report. A small and very much

ruined building stands on the edge of the 'Cenote; one portion of it looks very much like the remains of an oven, possibly for the baking of the earthenware figures mentioned in the report. The ruins of this small building can be seen on the left side of the photograph, Plate LIV., *a*.

Returning by the roadway and passing No. 14 there is next to be described the loftiest and most conspicuous building in Chichén, No. 15, commonly known as the Castillo (Plates LV. to LIX.). This must be the great Cue mentioned both in the Valladolid report and in Landa's description of the Ruins. There is considerable difficulty in obtaining accurate measurements of the Castillo owing to the large amount of fallen stone, but there is little doubt that the pyramidal foundation is not exactly set square, and the building at the top shows considerable difference in the measurements of its four sides.

The foundation is a truncated stone pyramid, measuring nearly 195 feet square at the base and $78\frac{1}{2}$ feet in height. In the centre of each slope is a stairway which with its broad balustrade measures 37 feet across. Each stairway projects 14 feet from the base of the pyramid and rising at an angle of 45° comes flush with the face of the pyramid at the top platform. The foot of the northern stairway is decorated with two huge serpents' heads, shown in Plate LVIII. The sides of the pyramid itself are divided into 9 great steps, and the face of each step is divided into panels which were probably adorned with paintings. The whole structure is stone-faced and has been coated with plaster, excepting the level terraces formed by the great steps, which appear to have been paved with a thick coating of cement only.

The ground-plan of this building is given on Plate LV. A broad entrance divided by two serpent columns, similar to those shown on Plate XXXII., leads into the northern chamber or porch*. The inner chamber is nearly square and is lighted only from a door on the north side. Two square stone pillars covered with sculptured ornament carry the carved wooden beams which support the triple-vaulted roof. This inner chamber is surrounded on three sides by an outer corridor having three doors, each door fronting one of the great stairways. The lintels of all the doorways in this building are made of beams of sapote wood.

It is difficult to form a correct idea of the sculptured ornaments of the temple, as the carved wooden beams are weatherworn and have been ruthlessly mutilated, and many of the stone sculptures are hopelessly weatherworn, whilst those of the central chamber have been thickly covered with a coating of adhesive cement which is very difficult to remove. Such sculptures as can be well seen are exceedingly crude both in design and execution, and all seem to be below the average in artistic value.

The panels at the top and bottom of the carved columns and on the jambs of the doors facing north usually contain grotesque figures with hands raised up as if supporting a heavy weight. On one of the inner jambs of the central doorway the

* See pages 27-28.

principal figure has a death's head. One of the carved door-jambs from the north porch and one from the western doorway are figured in Plate LIX.

It is very difficult to account for the coating of cement which covers some of the sculptures. I am inclined to think that the designs must, at some time, have failed to give satisfaction, and that they were plastered over and the columns redecorated with colour only.

The top of the roof of the Castillo is quite flat, and has been covered with a thick layer of cement, now much broken up by the roots of shrubs and other plants which have found holding ground in it. Round the edges the cement has broken away and some of the masonry has fallen, but fortunately the north-west corner is still intact, and it was here that I had the good fortune to find in position portions of the Greek fret ornament which had long been a puzzle to me, and which has been made use of in the restoration of the Great Ball Court Temple.

I had frequently seen fragments of this ornament whilst making a survey of the site of the ruins, and had been fortunate in finding two entire frets half buried in the side of the mound No. 18 (see Plate LXII., *b*). The tenons attached to them showed that they had stood out from a surface of masonry, and I was inclined to fall into the error of thinking that they had been let into the sides or corners of buildings somewhat in the manner of the grotesque noses, until I had the good fortune to find three together in position at this corner of the Castillo; rather more than half of each fret had been broken away, but measurements and careful comparison with those found lying on the ground make it almost certain that they were of similar design, and that they must have formed an important feature in the ornament of the flat-topped buildings.

To the east of the Castillo is a large group of buildings which has not received much attention from earlier visitors, and has never previously been surveyed or described.

A plan (Plate LX.) gives the principal features on a scale of 50 feet to an inch. Commencing at the northern end (No. 16) there are the remains of four rows of eight columns, each 2 feet 6 inches in diameter, standing on a low terrace with an enclosing wall running along the north and east sides. The fallen stones from No. 17 prevented the continuation of the wall being traced on the south side. The north wall forms the side of a rectangular mound which may at one time have served as the foundation for a building. These walls are all buttressed on the outer side. In the centre of the east or back wall are the remains of a doorway leading into an enclosed court containing 20 columns.

This building, and indeed each group of pillared buildings shown on the plan, presents very great difficulties in the matter of roofing; for not only has the roof in each case fallen in, but there is not one instance of an architrave or a fragment of roofing being found in position. In some cases the distance between the supports

is clearly too great to have been spanned by a stone roof constructed in the usual form.

It must be borne in mind that the structure of the parallel-laid stone vault necessitated a considerable weight of masonry to pin down the ends of the roofing-stones (as was shown when describing the Casa Colerada), and that in the case of all double-chambered houses, or with a triple-vaulted roof, such as that of the inner chamber of the Castillo, it was always customary and perhaps necessary to fill in the space between the vaults with rubble, so that each building had a flat outer surface to the roof. If, therefore, three or four parallel rows of columns supported vaults of this nature, on the fall of the roof a very large amount of débris would remain on the ground, probably burying the bases of the columns to the height of three or four feet, if not higher, and amongst this mass of fallen masonry the peculiar-shaped roofing-stones would easily be distinguished; but this is by no means always the case with the buildings now under consideration.

In describing these buildings, therefore, I shall merely state the general impression left on my mind after examining the amount of débris and noting the presence or absence of roofing-stones, and postpone all discussion of the difficulties in the way of constructing such stone roofs to the close.

In the case of *No. 16* the front colonnade may have been stone-roofed, and there are traces of additional stone walls between the columns which may have assisted in the support of the vault; but the enclosed court at the back with columns of less diameter was probably roofed with wood and cement, much in the same way as the houses are roofed in Yucatan at the present time.

No. 17.—The next structure (*No. 17*) did not at first promise to repay for any time expended on its examination; it appeared to be merely a lofty mound of loose stones and rubbish with steep sides, very dangerous to clamber over. However, two large serpents' heads at the foot of the slope on the west side and traces of steps showed that it had once been ascended by a fine stairway. Then my attention was attracted by a large rattlesnake capital lying near the foot of the mound. I did not at that time know the significance of these queer-shaped stones, and was constantly on the look-out for information regarding them. The fellow capital was next found lying near the top of the mound close to some pieces of a feathered column. My attention was now thoroughly aroused, and I made a careful examination of the mound, which resulted in finding the serpents' heads, belonging to the bases of the columns of the doorway, still in place at the top of the steps, but so deeply embedded amongst large fallen stones that I did no more than ascertain their position.

However, the shaft, capital, and base of the serpent column were all close together, and from the position in which the capital had fallen, and the pose of some small

human figures carved on it, I was able to come to a definite conclusion regarding the arrangement of column and capital which was fully confirmed by subsequent observations on other buildings, and is shown in the plans and restoration of the Ball Court Temple.

Lying near the foot of the slope on the east side of the mound I had seen two of the squat grotesque figures with their arms raised, as though intended to support a weight, which are figured in one of Dr. Le Plongeon's publications; and whilst clambering over the steep slope on the same side I found the heads and hands of similar figures sticking out from amongst the loose stones, and finally I was able to make out that a double line of these figures had supported some broad stone slabs. All their faces had been turned inward towards the temple, but the purpose of the slabs and their caryatid-like supports was altogether a mystery to me; however I had not sufficient labourers at the time to commence an excavation, and I had unwillingly to postpone any attempt to gain further information.

It was not until the last week of my stay that I was able to commence work on this mound, and as time was very short we began excavation where the grotesque little figures had attracted my attention. We succeeded in laying bare the whole of the east faces of the sculptured columns, of which only the top stones were previously visible, and they proved to be 9 feet high (see Plates LXI. and LXII., *a*). It was found that the foundations of the side walls of the building had extended beyond the two lines of figures and the slabs which they supported, but that no trace of the back wall remained; it had disappeared completely, and must now form part of the broken stone and rubbish covering the slope of the mound. The whole of the interior of the chambers up to the height of the tops of the columns, that is to say for 9 feet, is filled up with the fallen roof and superstructure, and out of this mass trees of considerable size are now growing.

I had no time to clear out the chambers beyond the edge of the columns, but no doubt remained as to the plan of the temple; careful measurements were taken, and the result is shown on the plan. The partition-wall dividing the two chambers could just be traced where it joined the side walls, but the breadth of the doorway through it could not be ascertained.

The slabs supported by the grotesque little caryatids must have formed an altar running all along the back of the inner chamber, and parts of it are well shown in the photographs.

The height of the foundation of the temple is about 25 feet.

No. 18.—The next mound to the south, No. 18, must have supported one of the principal buildings in the city. Unluckily it is in the same ruined condition as the last building described.

On a raised terrace in front can be traced the remains of 64 square columns in four

rows of sixteen each. I was unable to ascertain if these columns had supported a stone roof, for although many roofing-stones are lying among the débris, these have more probably fallen from the building above. Two stairways with a smooth slope between them rise from the back of these columns and lead to a broad terrace, in the centre of which is a broken recumbent stone figure (see Plate LXIII.). Another short stairway must have led from this terrace to the temple, the doorway of which was adorned with two serpent columns; portions of these columns and the two huge rattle-snake capitals lie scattered over the slope and the terrace below. The floor of the temple is 45 feet above the level of the ground. The remains of square columns and the indications of partition-walls can just be made out. This building would probably well repay excavation, as the back wall must be entire to the height of a few feet, and it is more than possible that all the figures of an altar similar to that last described would be found.

Still in position outside the south-east corner of the temple are the remains of a large grotesque head which had formed part of the outside decoration of the walls. The two stone frets figured in Plate LXII. were found lying among the loose stones and rubbish on the south slope of the foundation.

No. 19.—Almost in line with the columns in front of No. 18, but at a lower level, is a long colonnade (No. 19, Plate LX. and Plate LXIV., *a*) running to the southward, containing 184 columns, arranged in four rows, each column 2 feet 2 inches in diameter. The columns are round and are without any carved ornament, and, as is always the case, each column is made up of a number of stones. The colonnade is open to the west and closed on the east side by a buttressed wall.

At the south end of No. 19 a second colonnade (No. 20), containing 44 columns, 1 foot 8 inches in diameter, runs almost at right angles to the westward, and ends in a mound which probably supported a building, but which is now a complete ruin.

There is comparatively little débris among the columns of the long colonnade, and no roofing-stones could be seen, so that it is not likely that it supported a stone roof; but the portion running to the west may possibly have had a stone roof, as roofing-stones are numerous, and there are traces of walls running across the colonnade as though it had been divided into several chambers.

From the north end of No. 19 another colonnade (No. 21) runs to the eastward.

Although the trees which cover this colonnade and the remainder of the buildings comprised in the plan on Plate LX. are of small size, I did not attempt to remove them, but contented myself with thoroughly clearing away and burning the undergrowth. This was found to be the more expeditious method, and it was far easier to take measurements on this partly cleared ground than to do so by clambering over

the innumerable half-burnt stems, as had been the case when measuring colonnade No. 19.

The west end of No. 21 is partly enclosed by walls. There are four additional columns on the north side which may mark some means of approach from the Temple No. 18, but with this exception the whole of the north side of the colonnade is enclosed by a wall buttressed on the outside.

The colonnade is open on the south side and is approached at "a" by a stairway with serpents'-head balustrades. The columns are arranged in five rows, and it is curious to note that the cross rows do not run quite at right angles to the direction of the colonnade. The first twelve columns of the front row are square and are covered with sculptured ornament; the remainder of the columns of this row are also ornamented, but are round and measure 2 feet 2 inches in diameter (see Plates LXIV., *b*, and LXV., *a*).

The columns of the other four rows are without ornament, all are round, and each measures 1 foot 7 inches in diameter. All the columns are about 7 feet in height; most of them are still erect, and many are crowned with a plain oblong capital, the longest diameter of the capital lying across the colonnade.

The two lines *b, b* mark the position of a passage through the foundation on which the colonnade is raised. The walls are 4 feet high, above which is a vaulted roof 3 feet high, making the total height of the passage 7 feet.

As far eastward as the dotted line *c, c* the colonnade is choked up with débris (possibly the remains of a stone roof) almost to the capitals of the columns.

Beyond the line *c, c* is a group of 25 columns (*d*) arranged at a slightly different angle. As these columns are free from débris and clear almost to their bases they probably carried a roof of wood and plaster. This group of columns is approached by a stairway divided into three flights of steps with carved stonework between them.

To the east of this group is an open space (*e*) with two small square stone pavements near the centre. This is followed by another group of 25 columns (*f*) with some roof-stones and a considerable amount of débris lying amongst them.

To the north of the colonnade are two long high mounds (*No. 22*), on which the remains of stone houses can be traced.

At the east end of the colonnade the buildings are continued in a southerly direction. An oblong terrace (*No. 23*) supports a mound (*g*) on which a long single-chambered house had been built; the interior of this house had been purposely filled up with rubble, and on the top of it, at the south end, is a small chamber opening towards the east, of which only slight traces now remain. On the terrace to the south of the mound the remains of another small house (*h*), with three columns facing east, can just be made out. There were probably two rows of 18 columns each running along

the west side of these buildings; the remains of the whole of the front row can be seen, but only five of the second row could be made out amongst the tumbled mass of broken stone which covers the terrace.

The terrace (23) projects on the east side to support a colonnade (*j*) of 45 square columns arranged in five rows. There is a considerable amount of débris amongst these columns, and a few roofing-stones, which may, however, have fallen from the buildings raised on the foundation at "*g*." No enclosing walls could be traced round the colonnade, and I did not come to any conclusion with regard to the roofing. The ground falls away to the north-east, and the scarp is faced with stone.

The next building to the south (No. 24) is set at a slightly different angle, and appears to have been a house of five chambers, with roofs supported on two or three rows of columns. The south end of it is covered with fallen stone from No. 25, but in the plan I have completed the wall and added six columns of the southern chamber and one column in the outer chamber to correspond with the north end.

No. 25.—The next building (No. 25) is an important temple of the type of Nos. 17 and 18. The first terrace (*k*) is approached by a stairway with serpent-head balustrades. On either side of this terrace are two small chambers with square columns in front, the stone roofs of which have fallen.

A second stairway leads to another terrace on which lies a much worn recumbent statue similar to that at No. 18 (see Plate LXV., *δ*). Beyond this is the temple itself with two square serpent columns at the doorway. It is divided into two chambers, each chamber having a row of four square columns down the middle. An altar of stone slabs similar to that in No. 17, but supported on figures and small pillars alternately, appears to have stood against the back wall. Now only the remains of the slabs and figures can be seen sticking out of the mound. A chamber (*l*) can be traced along the south side of the foundation, and this chamber is continued at right angles in front of mound No. 26, which joins on to the south-east corner of No. 25. On the top of No. 26 I could trace the foundations of a house with four columns in front, but could not find any remains of the stairway by which it was approached. The roof of chamber (*l*) probably formed a terrace in front of No. 26, and the approach must almost certainly have been from this side. The whole of this part of the structure is now such a tumbled mass of stone that I found it almost impossible to trace the plan with anything like certainty.

From the south side of No. 25, and in front of No. 26, there runs a colonnade No. 27, which, judging from the number of portions of columns lying about, appears to have been continuous; but I could not be sure of the original positions of all the columns, and those of which I was not able to find the bases in position are marked

with a dotted circle. Between the south end of No. 26 and the commencement of the wall at "m," there is little débris lying amongst the overturned columns, and this part may have been roofed with wood and plaster.

This colonnade runs on, broken only where the absence of four columns makes a sort of courtyard or patio at "n," until it merges into the square colonnade No. 28, which is enclosed on three sides by a wall about 2 feet 3 inches thick.

In the centre of this square colonnade, also, the absence of four columns forms a sort of courtyard "o," and there is again a break in the symmetry at "p," where walls can be traced enclosing two columns out of line with the others.

To the east of No. 28 was a small group of houses with columns which I regret that I had not time to measure.

From the north-west corner of No. 28 a long mound, No. 29, extends in a westerly direction. It was approached by a stairway in the middle of the north side, which led to a terrace, and at the back of this terrace were traces of four double-chambered houses. Between these houses is a passage (q) leading into a courtyard, No. 30 (see Plate LXVI., a).

The floor of this court is about 5 feet higher than the ground outside the walls. The enclosing wall, seen from the outside in Plate LXVI., b, in one place measures 18 feet in height from the floor of the court, but is nowhere entire. There is no sign of any other entrance to the court except that already mentioned at "q." The square depression in the centre of the court, marked with a dotted line, was surrounded by columns which measured 14 feet in height, including the capital. The corner columns are the larger, each measuring 2 feet 2 inches across; the diameter of the others is 1 foot 9 inches. All the columns have fallen. There is not much débris in the court, and the height of the columns, their distance from the walls (24 feet), and the fact that the wall where it is 18 feet in height shows no signs of the spring of a vault, altogether precludes the possibility of those columns having supported a stone roof.

Although I have already stated that it was very probable that some of the colonnades were roofed with wood and cement, No. 30 affords the only example I have met with where it can be confidently asserted that some material other than stone must of necessity have been used for roofing. It seems most probable that wooden architraves connected the columns, and that beams sloping downwards from the outside walls rested on these architraves, the central patio being left open. The interstices between the beams were probably filled with rubble and cement, as in the modern houses in the Spanish-American towns.

Stone-roofing of the type invariably found in Central-American ruins must have presented great difficulties to the builders when a large space had to be covered with columns alone as a support.

If, for instance, the colonnade No. 28 were roofed with stone (judging from the construction of buildings still standing) a section at Y-Z would have presented the appearance of the following figure, and it is hardly possible that over a large space the columns alone could have supported such a superstructure.



However, at No. 28 the columns are buried almost up to their capitals in débris, and this by itself would suggest that the usual system of roofing had been followed. In hope of finding some explanation I made a careful examination of the surface of the ground, and dug into it here and there to see if traces of any other supports could be found, and was successful in making out part of the remains of three narrow walls, *r, r*; and such walls have already been mentioned as occurring in the colonnades Nos. 16 and 20. I am therefore inclined to believe that such added walls were found to be a necessity, and were freely used wherever the weight was found to be too great for the column to uphold it.

However, even with this additional support, such roofs must have been very unstable; and this may account for the complete ruin of all the buildings where columns have been freely used, whilst so many of those whose roofs were supported by walls are still standing.

I could find no traces of buildings inside the irregular square formed by the colonnades and temples shown on the plan; but at the south-west corner there are two mounds, No. 31, with the ruins of houses on them, and the remains of a small building (No. 32) enclosing two columns.

To the east of No. 26 are a number of ruined buildings of no particular interest, some of which are indicated on the plan, and I was told that similar remains were to be found for a considerable distance in that direction, but I did not personally examine them.

TIKÁL.

THE ruins of Tikál lie on a limestone plain to the north-east of the Lake of Peten, in approximately lat. $17^{\circ} 10' N.$, and long. $89^{\circ} 47' W.$

Bancroft* says: "The ruined structures of Tikál are reported to extend over a space of at least a league, and they were discovered, although their existence had been previously reported by natives, in 1848 by Governor Ambrosio Tut and Colonel Modesto Mendez."

The ruins were visited in the year 1877 by Dr. Bernoulli, who died on his way home, and whose notes have unfortunately not been preserved.

I visited Tikál in 1881 and 1882, setting out each time from Coban, in Vera Paz, and journeying northwards for ten days through the then almost uninhabited forest to the Paso Real, the ferry across the Rio de la Pasion, where the Government maintains a ferryman and serviceable canoes for the passage of the river. Fourteen miles north of the ferry stands the village of Saclúc, or La Libertad, the headquarters of the mahogany-cutters. From Saclúc a short day's ride across the savanna country brings one to the Lake of Petén Itzá and in sight of the island town of Flores or Tayasíl, a few hundred yards from the south-east shore of the lake. From Flores we travelled by night in canoes to the north-east shore of the lake to a place called El Remate, marked by one dilapidated rancho, and thence on foot through the forest for about thirty miles to the ruins of Tikál.

The place is absolutely desolate, the nearest Indian villages being San Andrés and some other small hamlets on the borders of the lake.

On neither occasion did my stay at the ruins exceed a week. The site of the ancient town is so thickly covered with forest that during my first visit most of the time was occupied in discovering the position of the more important buildings; and although in 1882 I sent men in advance to clear away some of the trees, I was not able to make a satisfactory survey, and the Plan on Plate LXVII. is very imperfect and merely indicates roughly the shape and size of the principal group of stone buildings near the house in which I camped, and gives approximately the position of the five great Temple Mounds.

Plate LXVIII. gives two general views of the site after the trees had been cleared from the slopes of the principal temple mounds: (a) was taken from the doorway of Temple A, looking westward, and shows Temple B at the opposite side of the Plaza,

* 'The Native Races of the Pacific States,' vol. iv. p. 135.

and Temples C and E in the distance; (*b*) was taken from the doorway of Temple E and shows the back of Temple C, and on the right, in the distance, the Temples B and A. All around the dense forest extends as far as the eye can reach.

THE CARVED LINTELS.

Both the outer and inner doorways of the Temples were covered with lintels formed of a number of beams of hard wood, probably the wood of the Chico Sapote tree. Some of these lintels are beautifully carved.

After his visit to Tikál in 1877, Dr. Bernoulli induced a party of Indians to return to the ruins and cut out and bring to him the carved beams which were in the best state of preservation. These beams were forwarded to the Museum at Basle, but no notes accompanied them, and Dr. Bernoulli died soon afterwards in North America.

At the time of my visit to Tikál I had not seen the lintels preserved at Basle. A few years later I was able to purchase plaster casts of the carvings, made at Basle by M. Desiré Charnay, and quite recently I have been able to obtain good photographs of the originals.

The lintel figured on Plate LXXVII. was so far complete that the Director of the Basle Museum had been able to exhibit the carved beams pieced together in their proper order. This lintel I have ascribed to the inner doorway of Temple C, but am by no means sure that this location is correct. The dimensions agree fairly well, but on my original plan of the building there is written across this doorway "Carved beams much destroyed"; this note may, however, have been written on observing some small fragment of carving on one of the ends of the beams left embedded in the wall. On the other hand, the lintel may have been removed from the inner doorway of Temple D, and its removal may have caused the fall of masonry which prevented me from measuring the chambers of that Temple. I greatly regret that my memory fails me in this matter, as the proper location of the carving is of great importance; and I trust that the next visitor to the ruins will take careful measurements of all the temple doorways and make moulds of all the carved beams which still remain in place, however dilapidated their condition may be.

The fragments of the beams which I believe to have been taken from Temple A have not hitherto been joined together, and it is only after a long study of the casts and photographs that I venture to figure them as arranged on Plates LXXI. and LXXII. My notes record that "two beams of the middle lintel (of Temple A) remain in place, well carved in medium relief, but much decayed." It will be seen from the plan that the three lintels must have varied both in length and breadth. I am inclined to think

that the middle lintel must have represented some object of worship, and that the carving on the three lintels formed one design, somewhat similar to the tablets of the Temples of the Cross or the Sun at Palenque.

In the year 1875 an English traveller, Mr. J. W. Boddam-Whetham, visited the Lake of Peten and purchased from the Indians at Flores two fragments of carved beams, which he presented to the British Museum; one of these fragments I have been able to restore to its proper place in the photograph and drawing on Plates LXXI. and LXXIV. A photograph of the other fragment is given on Plate LXXI., but its proper position cannot be ascertained.

TEMPLE A. (Plates LXIX. to LXXIV.)

The base of the foundation-mound of this Temple measures 130 feet across the front and slightly less on the sides. A steep stairway, 28 feet broad and projecting 19 feet from the base of the mound, gives access to the Temple on the summit. A measurement taken at the north-west angle from the base of the mound to the north-west corner of the Temple gave 104 feet.

The sides of the foundation-mound are stepped and panelled in a manner somewhat similar to that shown in the plan and photographs of the Castillo at Chichén Itzá (see Plates LV. to LIX.).

The base of the Temple itself measures about 41 feet by 26 feet. Unfortunately the detail measurements of the sides and back have been lost. The height of the Temple probably exceeded 45 feet, but part of the superstructure is broken away and no accurate measurement could be taken. The exterior walls are plain up to the height of the first string-course; above that the superstructure (which recedes in steps) appears to have been elaborately decorated in front, but left plain at the back. The very curious division of the side walls, which is a marked feature of all the Tikál Temples, can be seen on Plate LXX., *b*.

The interior measurements are correct, and show the three parallel chambers connected by broad doorways. The floor of the middle chamber is raised a step above that of the outer chamber, and the floor of the inner chamber is a step higher than that of the middle chamber.

The outer doorway and the doorways between the chambers are covered with lintels made up of four or five beams of hard wood, probably the wood of the Chico Sapote. The section of Temple B on Plate LXIX. shows the usual arrangement of these lintels. The outer and inner lintels in Temple A have disappeared, and these are probably amongst the beams removed at the instance of Dr. Bernoulli in 1877, and now lodged in the Museum of Archaeology at Basle, photographs and a drawing of which are

given on Plates LXXI. to LXXIV. Of the two fragments of these beams bought at Flores by Mr. J. W. Boddam-Whetham, one is restored to its place in the photograph and drawing on Plates LXXI. and LXXIV., and a photograph of the other fragment is given on Plate LXXI.

TEMPLE B. (Plates LXIX. and LXXV.)

The foundation-mound of this Temple appears to be divided into three stages measuring about 80 feet on the slopes. The height of the Temple itself, so far as I could measure it from the foot of the doorway to the top of the superstructure, is about 51 feet.

Some of the exterior ornament can be seen in the photographs. The beams over the middle doorway are ornamented with carving, now much decayed.

TEMPLE C. (Plates LXIX., LXXVI., *a*, and LXXVII. & LXXVIII.)

The base of the foundation-mound measures 184 feet by 168 feet. A measurement taken on the front slope from the ground to the foot of the Temple gave 112 feet.

The Temple contains two chambers only. The lintel of the outer doorway has disappeared. The beams which formed the lintel of the inner doorway are possibly those removed at the instance of Dr. Bernoulli, and are figured on Plates LXXVII. and LXXVIII.

TEMPLE D. (Plate LXXVI., *b*.)

The dimensions of this Temple were not taken, but the two men standing in front of the doorway in the photograph give some measure of its great size.

The interior of the Temple was entirely blocked up with fallen masonry, which we were unable to remove.

TEMPLE E. (Plate LXXIX.)

This Temple is by far the largest of the whole group. It can be seen in the distance in the photograph on Plate LXVIII., *a*. The foundation-mound stands back on a terrace 11 feet high, and the mound itself measures 280 feet across the base and

160 feet on the slope. A ground-plan of the Temple is given on Plate LXXIX. It measures about 98 feet by 42 feet. The outer doorway is 7 feet high. The extraordinary thickness of the walls is most remarkable.

No other Temples in Central America offer such support to the theory that the position and form of the buildings were due to astronomical considerations as those of Tikál. The lofty elevation so as to secure a clear view, the evident desire to gain length of axis, and the fact that all the Temples may be roughly said to face the cardinal points, favours this theory, and it may be that we can trace the sequence of the structures by their position. For instance, the Temples B, C, and E, facing the rising sun, would follow one another in order of time; C would have been built when the erection of A had impeded the fairway of B; and E would have been built when the fairway of C had been obscured by the large group of buildings to the east of it; and it will be observed that this sequence follows the order of size—C being larger than B, and E than C. The fairway of A, which faces the setting sun, is still unimpeded, and there is therefore no larger temple facing in that direction. Unfortunately at the time of my visits to these ruins I did not pay any particular attention to the orientation of the temples beyond what was sufficient to fix their positions in the general sketch-plan; indeed, I was not provided with instruments for an accurate survey, even if I had had time to use them. I now especially regret that I did not more carefully examine the smaller mounds in the neighbourhood of A and B, for I am inclined to think that an earlier northern temple might be traced in the mound marked *f*, which, when its fairway was interrupted, was superseded by the large Temple D, whose foundation-mound stands on higher ground and still commands a clear view.

I was able to secure only a rough outline-measurement of the large group of buildings between Temples A and D. The house I lived in is marked * on Plate LXVII. It had been a two-chambered house, but the wall of the outer chamber had fallen away. The inner chamber measured 48 feet 8 inches by 5 feet 2 inches. A photograph of the interior is given on Plate LXXX., *a*. The north side of this house and the house in line with it to the west form one side of a square courtyard. There is a deep depression in the ground between the south side of these houses and Temple D.

In several of the neighbouring houses the numerous small chambers are still intact.

The house marked *g* on Plate LXVII. is one in a fairly good state of preservation, and a ground-plan of it is given on Plate LXXIX. In some of the rooms there are masonry benches raised about eighteen inches above the level of the floor.

Many of the doorways in this and the other houses are covered with lintels formed of beams of hard wood without any carved ornament, and wooden beams were commonly used in the form of struts across the gable-roofs, as can be seen in the photograph, Plate LXXX., *a*. It is worth noting that these beams are in many instances quite sound, whereas at Palenque, where wooden lintels were also used, all trace of wood has disappeared, the last small fragment of a wooden lintel having been seen there by Stephens in the year 1840.

On the north side of the Plaza, between Temples A and B, are three square foundation-mounds supporting the remains of ruined buildings which were probably temples, and in front of them are a number of small stone stelæ and circular altars. Some of them can be seen in the photograph on Plate LXX., *a*. The face of the most important of these monuments is given on Plate LXXXI. A Maya chieftain or priest, elaborately dressed, is holding in his hand what appears to be a "Mannikin sceptre," and a fallen enemy or victim lies bound at his feet.

The inscription is shown on Plate LXXXII., *a* & *b*, and a drawing of the inscription copied from these photographs is given on Plate LXXIX.

A flat circular altar ornamented on the side is lying in front of this monument.

Photographs of two other monuments are also given on Plate LXXXII.

Tikál is well worth the attention of future explorers, and would, I feel sure, amply repay the labour of a lengthy and careful examination; but before such an expedition could be successfully undertaken adequate preparations must be made.

The difficulty lies principally in the want of a sufficient supply of water. Every drop of water we used had to be brought the distance of a mile and a half from an overgrown muddy lagoon not more than 150 yards wide, and it was so thick and dirty that I never dared to drink it until it had first been boiled and then filtered; my Indian workmen, who refused to take any precautions, suffered considerably from fever.

A few years before the date of my visit to Tikál a party of Indians from the borders of the lake had attempted to form a settlement in the neighbourhood of the ruins. The solitary survivor of this party accompanied me as a guide, all the others having died of fever. This man told me that the small lagoon was the only source of water-supply, and that the nearest running stream was a branch of the Rio Hondo, some miles distant. The ancient inhabitants probably stored water in "chaltunes," the underground cisterns which are found in such large numbers amongst the ruins in the north of Yucatan; I discovered two such cisterns beneath the floor of the plaza, but had not time to clear them out.

I have always deeply regretted that previous to my visits to Tikál I had not learnt how to make paper moulds, as copies of the inscriptions on the stelæ and the remains of the carved wooden beams in the Temples would be of great value to archæologists.

When I was on the frontier of British Honduras, in the month of April 1887, I tried

to remedy this omission by despatching two of the Lopez brothers and five or six Indian mozos with orders to go straight to Tikál (about a five days' journey) and to make paper moulds of all the monuments and carvings which we had noted in 1882, but the expedition resulted in complete failure. The men reached Tikál in safety, but could find no drinking-water during the last part of the journey, and when they arrived at the small lagoon near the ruins which had afforded us a supply in 1881 and 1882 it was only to find that it was completely dry.

There was nothing to do but to make the best of their way back again, and their sufferings were severe, as for three days they had nothing to drink beyond what they could collect from the water-lianas growing in the forest.

BIOLOGIA
CENTRALI-AMERICANA;

OR,

CONTRIBUTIONS TO THE KNOWLEDGE

OF THE

FAUNA AND FLORA

OF

MEXICO AND CENTRAL AMERICA.

EDITED BY

F. DUCANE GODMAN AND OSBERT SALVIN.

ARCHÆOLOGY.

By A. P. MAUDSLAY.

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RUINS OF PALENQUE.

PERSONAL NARRATIVE.

PROFITING by my experience at Chichén Itzá in 1889 I prefaced the expedition to Palenque in 1890-91 by a visit to the city of Mexico, where the English Minister, Sir Spencer St. John, gave me the kindest assistance in obtaining from Señor Mariscal, the Minister of Foreign Affairs, a letter of introduction to the Governor of the State of Chiapas, as well as a general letter of recommendation addressed to all local officers.

Thus equipped I started for Palenque, crossing the Gulf from the port of Vera Cruz to Progreso in Yucatan, and thence travelling in a small coasting-steamer to the port of Laguna. Here the usual delays commenced; the arrival of my heavy baggage was delayed by storms in the Gulf, and when it did arrive, although the Federal Government had given orders that everything should be passed through the Custom House free of duty, the Customs officials found it necessary to open every package, weigh the contents, and make out elaborate lists—much more, I believe, to satisfy their own curiosity than, as they stated, to ensure the unquestioned passage of my baggage into the neighbouring State of Chiapas. There was then a further delay before arrangements could be concluded for the hire of a small steamer to convey us and our baggage across the Laguna del Carmen and up the River Usumacinta as far as the village of Monte Cristo. At Laguna I was joined by Mr. Hugh Price, who had come out from England as a volunteer to join the expedition and undertake the work of surveying the ruins. We had also an addition to our party in M. Ludovic Chambon, a young Frenchman on a tour through Mexico, who was desirous to see something of its antiquities.

The passage from Laguna to Monte Cristo should have taken about thirty-six hours, but, what with running on sandbanks and the breakdown of machinery, it took us three days and two nights. The mouths of the Usumacinta are unrivalled in Central America in the size of their alligators and the number and ferocity of their mosquitos, and at the narrow entrance of the river we stuck fast with a falling tide and passed

the first night in torment. Above this narrow passage the river widens out, and, after passing the fork above Palisada (whence half the water flows out into the Gulf by the Frontera mouth), the Usumacinta is a magnificent broad river.

We parted with M. Chambon at Monte Cristo, as he was to continue his voyage in the steamer as far as Tenosique, on his way to visit the ruins of Menché, which are now much more easily accessible than when I visited them from Guatemala in 1882.

At Monte Cristo I met with much kindness and assistance from Don Carlos Majarres and Don Adolfo Erezuma. When all my baggage was safely housed I looked about for means of transport to the village of Santo Domingo de Palenque, distant about thirty miles inland.

Here I was met by fresh difficulties. The natives rely almost entirely on the network of rivers and lagoons for the carriage of their goods, and our course lay away from the river-system. It is true that I could have availed myself of water carriage as far as the lagoon of Catasajá, but this would have involved a long detour, and we should still have been distant about fifteen miles from our destination. There were no Indian carriers to be found in Monte Cristo or its near neighbourhood, and the half-castes are not accustomed to carrying loads on their backs. We were indeed offered the use of two cargo-mules, but these were of little use to us, as there was no such thing as a pack-saddle in the village. A messenger was then despatched to Santo Domingo to see if cargadores or pack-mules could be obtained at that village, and after waiting a few days three wretched-looking beasts of burden with old rotten pack-saddles made their appearance accompanied by a few Indian carriers. With these were despatched the first instalment of the baggage, and we then had to wait patiently for their return. At the end of ten days, by pressing into our service some Tumbalá Indians who had brought the produce of their gardens for sale in Monte Cristo, and were returning to their homes by way of Palenque, and by putting my own three pack-saddles on to the mules we could hire in the village, we were able to make a start for Santo Domingo.

The weather had been lovely since our arrival at Laguna; but the season of "Northers" was not yet over, and heavy rain had been falling in the direction of the mountains, and we found the track so bad that it was necessary to make a considerable detour and to stop for the night at the cattle-ranche of San Filipi, the only habitation on the road. The track is fairly level, passing alternately through patches of forest and open savannah. The ground very gradually rises from the valley of the Usumacinta towards San Filipi, and then dips again to the course of a small stream before rising to the village of Santo Domingo, which is picturesquely situated in a clearing of considerable size carpeted with short grass, which grows right up to the doors of the houses. All around is thick woodland, but to the south the land again falls, and there is a good view across the valley of the Chacamás river to the Sierra, which begins to rise at the distance of about half a league.

Many years ago Santo Domingo de Palenque was a place of importance, as it stood

on the main road of communication between the Gulf of Mexico and Guatemala; but this route has long ago been given up, and Palenque has dwindled away to a village of half-a-dozen white and Mestizo families and a small community of Indians.

The ruins are six miles distant from Santo Domingo, and the first thing to be done was to open the track to them, which was completely grown over, and to make arrangements for a regular supply of labourers. At first all promised well; my general letter to the officials had a considerable effect, and my letter to the Governor of the State had been already forwarded to him from Laguna. Palenque is seven days' journey from San Cristóbal, the residence of the Governor, and two days' journey from El Salto, the residence of the Jefe Politico, so that some time passed before the answers to my letters reached me, but when they did arrive they were of the most satisfactory character.

Unfortunately, free voluntary labour is almost an unknown thing in these countries, and without the aid of the local authorities nothing can be done. I had asked for thirty labourers, and these were promised me; but the number which came to work did not at first exceed fifteen, and gradually dwindled to three or four.

We stayed in the village for a week, riding backwards and forwards daily to see to the construction of rough bridges across the narrow streams on the road, and to the clearing of the most habitable-looking buildings amongst the ruins.

On the 1st February we were joined by M. Chambon, who had returned from his visit to Menché, and the track now being practicable for pack-mules we all set out to take up our residence in the ruins. We expected discomfort, and certainly did not escape it; the showers were heavy, and the walls of the buildings were running with water, and only a few square yards could be found in the best-preserved building where the drip from the roof was not continuous. We had to do our own cooking, and only from six to a dozen men came from Palenque to work each day. At the end of a week we were told that no more labourers could come for some days on account of the Carnival, so I rode back to Monte Cristo to look after the remainder of our baggage in company with M. Chambon, who was continuing his journey through Mexico.

On the 12th February I returned to the ruins. During the next few days we had some heavy rain. On the 16th we received a visit from the Jefe Politico, Don Amada Salozorgo, who regretted the small supply of labourers and assured me that there would be no difficulty on that account in the future. He told me that all the able-bodied men in the Province had to give four days' work on the roads, and as all the principal road-making was now being carried on at some distance from Palenque, that the contingents from Santo Domingo and its neighbourhood and from the larger village of Las Playas de Catasajá should be sent to work at the ruins—fifteen men to come from Santo Domingo and fifteen from Las Playas, to remain four days, when they would be relieved by other companies,—that I should pay the wages of these men to the municipal officers, who would employ the money in hiring labourers for the roads in

the more immediate neighbourhood of the work, and that in addition to this he would send a company of twenty-five Indians from one of the larger Indian towns in the Sierra. This arrangement filled me with the hope that I should be able to accomplish the work I had taken in hand as thoroughly as I could desire.

On the 20th February I was glad to welcome my old friends and companions Gorgonio and José Domingo Lopes, who had ridden over from Guatemala to join me. Gorgonio brought his son Caralampio with him, a bright boy of fifteen, who was a useful addition to the party, so that now there was no lack of overseers.

On the 23rd a company of Indians arrived from the Sierra, and about the same time a contingent came from Las Playas, and for two or three days there were about fifty men at work. Then the number began to fall off again, and by the 28th we were left without a single labourer. After this the numbers varied from three to sixteen until the 16th March, when again we were left without any labourers. It was most disheartening, for, believing in the Jefe's promises, I had commenced work on rather a large scale, and now it seemed as though much of the work which I looked on as essential would have to be left undone.

Letters and messages to the Jefe and the other local authorities were of no avail; they produced only a fresh crop of promises which were again broken.

It was of little use writing or telegraphing to San Cristóbal or Mexico—the former was distant a week's journey, and the nearest telegraph-station at San Juan Bautista was not much nearer. However, in my extremity I did both. A little help dribbled in from Las Playas and Santo Domingo, and at last my importunities at the Jefetura secured the services of twenty Tumbala Indians for a week.

We ourselves were, of course, not idle during this time. The brothers Lopes worked with indomitable energy at moulding the inscriptions, a work that fell all the heavier on them when there were no labourers to carry up the water from the stream and to cut and stack the large quantity of firewood needed for the drying-fires. The inscriptions in the four detached temples were of the greatest importance, and these were the first to be moulded. This work had occupied us about three weeks, and some of the moulds were dry and had been stored on the scaffolds and shelves which we had put up in the temples for the purpose, and others were in the course of being dried, when a sudden storm burst on us in the night. It would have been most dangerous to have attempted to cross the plazas and climb the pyramids over the loose stones and recently-felled trees on such a night, and we could only trust that the waterproof covers which we had placed over the moulds would afford them sufficient protection. Alas! the heavy rain continued all the next day, and to move the moulds was impossible, even if any drier places could have been found in which to store them. The undried moulds which had been left adhering to the sculptured slabs were almost washed away by the continual trickling of the water, and our efforts to protect those which were already dry and stored on the shelves were of little avail. The buildings were sopping wet, the

walls running with water, and the roofs dripping water in all directions, and when at last the weather cleared and we could carry out the pulpy paper-moulds into the sunshine it was found that most of the work would have to be done over again.

During the time labourers were so scarce Mr. Price and I were chiefly occupied in clearing off the incrustation of carbonate of lime which covered and sometimes almost obliterated the stucco ornamentation on the piers and walls of the temple. This was work which we found could not be entrusted to other hands, as it needed not only the greatest care but some knowledge of the design of the ornament which was being uncovered. We had not come especially prepared for this work, but luckily we found that some large screwdrivers, with the addition of some wooden mallets and bradawls and some smaller screwdrivers from our gun- and instrument-cases, answered very well as tools for our purpose. In some places the incrustation had formed a coat of lime as much as six inches thick, but when as thick as this it was generally soft and could be separated from the face of the stucco without much difficulty, although the job was a very tedious one. When, however, the coating was thinner it was almost always much denser, and often only a few square inches of the moulding could be cleared in the course of a day, and we found it absolutely necessary to use spectacles to protect our eyes from the hard flint-like particles which flew off at a blow given to the chisel. Here and there the attempt to clean the stucco ornament had to be given up altogether, as the incrustation had formed a hard covering, whilst the stucco beneath had become disintegrated and soapy and had no surface left.

In some cases the stucco, although still hard, was broken in all directions and only held in place by the deposit on its surface. When the incrustation could be removed in large pieces and the surface of the stucco was sound, we sometimes found the colours with which it had been painted still retaining something of their former brilliancy.

In order to secure good photographs I found it necessary to bring the stucco ornamentation to an even tone by washing it over with a distemper of wood-ashes and flake white, which did no harm to the moulding and was all washed off again by the first shower of rain.

The terraces in front of the buildings were so narrow that no photographs of the ornaments on the piers could be taken without building out scaffolds on which to place the camera, and this entailed a large amount of extra work.

I had hoped to take large-sized photographs of all the ornamented piers, but unfortunately, through some error on the part of the shipping agent in New York, the case containing the 12×10 inch camera was not forwarded with the other boxes; and although the mistake was found out and the case at once sent after me, I had left Laguna before it arrived, and the delay in forwarding it up the country was so great that I was obliged to do all the work on the piers with a smaller camera and a 8½×6½ inch plate.

Although some of this detail work of photography could be got on with, the general work both of photography and survey could not be commenced until fire had been run

through the clearing—in fact until that was done it was a difficult gymnastic exercise to get about from one building to another. Unluckily we missed the first opportunity of burning the fallen bush when it was thoroughly dry after some excessively hot weather in the month of March. It is always a great advantage to burn off the whole of a clearing at one time, and I was then still hopeful of getting some more of the ground cleared towards the south, where there was no heavy timber, when a sudden and unexpected rain-storm broke on us. After that several “northers” accompanied by heavy rain rendered firing impossible. Three times the plaza through which the little stream runs was completely flooded, and in the buildings which we inhabited the drip from the roof began afresh, and the floor of the chamber which I had arranged as a dark room for photography was some inches deep in water.

It was not until the 15th April that we were able to put fire through the clearing, and then within two days Mr. Price laid out his base lines for the plane-table survey, and I was able to take the large-sized views which appear amongst the plates.

On the 12th May we returned to the village of Santo Domingo, and a day or two afterwards arrived at Monte Cristo. Here I parted from Mr. Price and the Lopeses, who were going, by way of Peten, to Coban in Guatemala, and I afterwards learnt that they had a very hard journey, suffering much at one time both from want of food and water and later from excessive rain.

During our stay at the ruins we suffered from no fevers or other tropical maladies. The bright little stream afforded capital bathing-places, and the drinking-water, although heavily charged with lime, seemed to agree with us all.

The northers and heavy rains were no doubt later than usual, but we had one unusually hot week in March, when the thermometer inside the houses frequently went up to 94°, and during this week the nights also were hot; usually the nights were pleasantly cool, and but for the myriads of mosquitos would have been most enjoyable. However, we could generally find some spot where there was a cool breeze and we could escape their attacks; and the beauty of the moonlight nights when we sat smoking and chatting on the western terrace looking on to the illuminated face of the Temple of Inscriptions and the dark forest behind it will never fade from my memory.

Towards the end of April, and until the end of our stay, the days again became hotter, but heavy clouds occasionally shaded us from the sun, and we never again experienced the torrid cloudless days we passed through during the one hot week in March.

PRINCIPAL NOTICES AND DESCRIPTIONS OF THE RUINS.

It appears that the ruins of Palenque became known to the Spaniards in the middle of the eighteenth century, and that they were first examined and reported on in the year 1773 at the instance of Don Ramon de Ordoñez y Aguiar, who forwarded a "Memoria relativa a las ruinas de la Ciudad descubierta en las in mediaciones del Pueblo de Palenque" (a MS. formerly in the collection of the Abbé Brasseur de Bourbourg) to Don José Estacheria, President of the Audiencia of Guatemala.

At the order of the President the ruins were again examined and reported on in 1784 by José Antonio Calderon. A French translation of Calderon's report is given in Brasseur's Introduction to Waldeck's work. During the next year the survey was continued by the architect Antonio Bernasconi. Upon Calderon's and Bernasconi's reports Don Juan Bautista Muñoz, the Royal Historiographer, drew up a memorandum addressed to Don José de Galvez, Marquis de la Sonora, dated 1786, and now preserved together with Bernasconi's pencil-drawings in the British Museum. (Spanish MSS. Add. 17571. Desgubrimientos en el Pueblo de Palenque, etc.)

In 1786 the work was carried on by Antonio del Rio, and a report signed by him, and dated Palenque 1786, but partly in the handwriting of Don Juan Bautista Muñoz, is included in the volume of British Museum, MSS. quoted above. Bound up with this Report are four coloured maps of the ruins of Palenque, and some drawings which are evidently fair copies of the pencil-drawings already mentioned, attributed in the catalogue (drawn up by Don Pascual de Gayangos) to Bernasconi.

An English translation of the Report, under the title of 'Description of the Ruins of an Ancient City, discovered near Palenque,' was published in London in 1822 by Henry Berthoud, and illustrated by seventeen lithographic plates signed by Fred. Waldeck. It is doubtful whether these plates are taken from del Rio's drawings, and it is more probable that they were adapted from the drawings made by Castañeda in 1807.

The following quotation from del Rio's Report accounts for some of the yawning holes to be found in the pavements and walls of the temples:—"I was convinced that in order to form some idea of the first inhabitants and of the antiquities connected with their establishments it would be indispensably necessary to make several excavations. . . . By dint of perseverance I effected all that was necessary to be done, so that ultimately there remained neither a window nor a doorway blocked up, a partition that was not thrown down, nor a room, corridor, court, tower, nor subterranean passage in which excavations were not effected from two to three yards in depth."

In 1807 Captain Guillermo Dupaix, accompanied by a draughtsman Luciano Castañeda, in the course of a three years' survey of the ruins of Southern Mexico,

visited Palenque, but, owing to the outbreak of the revolution in Mexico, both Dupaix's Report and Castañeda's drawings were lost sight of for some years.

In 1831 the report and some of the drawings were published in Lord Kingsborough's 'Mexican Antiquities,' and in 1834 both report and drawings were published in 'Antiquités Mexicaines' (Paris, 1834).

In April 1832 M. Fred. de Waldeck arrived at Palenque and commenced a survey and examination of the ruins which extended over two years. The results of his labours were not, however, published until 1866, when the French Government undertook the task and published the 'Monuments Anciens du Mexique' with an Introduction by the Abbé Brasseur de Bourbourg, in large folio, illustrated by 56 lithographic plates of Waldeck's drawings and plans, 35 of which relate to Palenque.

Meanwhile, in 1840, Stephens and Catherwood had visited Palenque, and published in 1841 an interesting description of the ruins, and many excellent drawings ('Incidents of Travel in Central America, Chiapas, and Yucatan,' vol. ii., and Catherwood's 'Views,' plates vi. & vii.).

In 'Ruines Américaines' (Paris, 1863), M. Désiré Charnay gives four photographs taken during his visit to the ruins in 1858, and in 'Les Anciennes Villes du Nouveau Monde' (Paris, 1885) he gives an account of his sojourn in the ruins in 1881-2, with numerous illustrations taken from photographs and casts.

A large number of shorter and less important notices have been published from time to time, and a careful bibliographical note is to be found in Bancroft's 'Native Races of the Pacific States,' vol. iv. pp. 289-294, and there is also much information in 'Notes on the Bibliography of Yucatan and Central America,' by Mr. Ad. F. Bandelier (Press of Chas. Hamilton, Worcester, Mass., 1881).

GENERAL DESCRIPTION OF THE SITE.

(See Plan on Plate I., and sections on Plate II.)

The ruins of Palenque are situated in the Mexican State of Chiapas, in N. lat. 17° 29' 30", and W. long. (approximate) 92° 5' 20".

They stand on a narrow shelf on the northern slope of the foothills of the Sierra de las Naranjas. This range here runs nearly east and west, and overlooks to the north a level plain of forest and savannah land extending about seventy miles to the shores of the Gulf of Mexico.

The track from the village of Santo Domingo to the ruins follows a W.S.W. direction

for about five miles, and then after crossing the Michol and another small stream, ascends the broken limestone cliff dividing the plateau on which the ruins stand from the plain below; the small stream already mentioned tumbles in a succession of cascades over its rocky bed on the left of the track, and one of the first things to strike the attention soon after reaching the plateau is a stone dam thrown across the stream and pierced by a tunnel so as to form a bridge. The first building which comes in sight a hundred yards beyond this bridge is the N.E. corner of the Palacio.

The extent of the ruins has been variously estimated, almost always with a tendency towards the marvellous: nine square leagues, twenty-two miles in length, larger than London, are estimates given by different writers, but I am unable to find any reason to justify them. No doubt artificial mounds and the remains of ancient buildings may be met with all along the slope of the sierra which inclines towards the great delta of the Tabasco River, for the situation presents many attractions, the soil is capable of supporting a large population, and the inhabitants may have taken advantage both of the highlands behind and the level plain below them for the cultivation of their crops. The climate, although damp, is markedly cooler than that of the plain, and a short day's journey from almost any part of the foothills would bring a traveller to one of the innumerable waterways which form a network over the delta.

The plateau on which the principal buildings of the Palenque group of ruins stand is not naturally perfectly level, but had a considerable slope downwards towards the north. This gradually sloping ground has been divided up and terraced into a number of comparatively level plots.

The forest which clothes the sides of the sierra is very dense, and any accurate measurement of the extent of the group of ruins would be a matter of great difficulty. Our clearing did not extend beyond 150 acres, and even our excursions round the borders of the clearing and for some little distance into the forest did not enable us to form any very accurate judgment, and only the following vague statement can be made:—

Following the four sections into which the Plan on Plate I. is folded: to the east of Section A the hills rise steeply, so that building was not practicable and only a few small mounds are found in that direction. To the east of Section B one small mound of hewn stone crowns the high hill which can be seen in the background of the photograph on Plate XIV. It was a site likely to be chosen for a small adoritorio or for a look-out station, as it commands a magnificent view of the plain.

The chambered mounds marked in Section B do not extend far beyond the margin of the plan, and the land to the south rises steeply, and no trace of buildings could be found.

No buildings could be seen on the hillside to the south of Section C, but at a lower level, following the sweep of the hill from the Temple of Inscriptions towards the

south-west, terraces and mounds are found in considerable numbers for the distance of at least half a mile.

To the west of Section D there are numerous remains of mounds with burial chambers, and others which may have supported buildings of perishable material, probably used as dwelling-houses of the ancient population.

To the north of Sections D and A there are a very few traces of stone-faced mounds on the narrow terraces between the cliffs and broken slopes which descend to the plain.

The structures within the area comprised in the plan appear to have been of two classes only, namely, Temples and Tombs. The so-called Palace and almost all the buildings above ground still standing were almost certainly temples, and the mounds on the hillsides above them are almost all tombs, and similar tombs also cover a large space of ground in all directions.

It is most probable that each one of the mounds on which the buildings stand had a stairway ascending one or more of its sides, but owing to the amount of *débris*, and the tangle of roots with which it is bound together, these stairways are almost all lost to view.

The temples did not differ in structure from the buildings which have already been described in other parts of this work; nearly all are built of a hard limestone in small roughly-squared blocks embedded in hard plaster, and the surfaces were coated with a fine stucco having a smooth polished surface. There are also a few ruined structures which were built of worked blocks of a soft sandstone. Wood has been frequently used for lintels, every particle of which has now disappeared, but the impress of the grain of the wood can in many places be traced on the surface of the plaster coating on which it rested. In some instances slabs of a sort of brick or artificial stone have been used for the cap-stones of the vaulted roofs.

Openings can be seen in the sides of some of the mounds which lead to sepulchral chambers, and many of the smaller mounds may be said to be honeycombed with well-built chambers in which usually nothing can be seen but bare walls, and in some cases a slab of stone raised on four short legs, or a small platform of rubble coated over with stucco. It does not seem probable that these chambers could at any time have been used as dwellings, owing to the absence of light and ventilation except from a single entrance, and in many cases even this has been sealed up by building a secondary wall across the entrance itself or the passage leading into the chamber. Excavation beneath the floors of these chambers almost invariably brings to light human remains and fragments of personal ornaments and of pottery. In a few instances only were the stone receptacles for the dead found above the floor of the chamber.

The stream which flows through the ruins, after issuing from a deep ravine, passes for some distance through an enclosed aqueduct beneath the level floor of the plaza. This aqueduct or tunnel is strongly built of large roughly-squared stones and has a vaulted stone roof.

The upper end of the aqueduct is no longer visible, as it has been closed up with the drift of gravel and stones, and through this obstruction the water percolates when the stream is low, but after a heavy shower, when the stream rises rapidly, most of the water finds its way along a surface channel on the floor of the plaza and falls into the main channel again at the lower mouth of the aqueduct.

A large stone which projects from the wall at this northern outlet is carved in the shape of an alligator's head.

In describing the ruins it is convenient to have names by which to identify the different buildings, and those names have been retained which are in common use amongst the villagers of Santo Domingo, and have been previously used in descriptions by Stephens and other travellers. It is for this reason that the group of buildings about to be described is called the Palace, and not from any belief on my part that it was used as a royal residence.

DETAILED DESCRIPTION OF THE PRINCIPAL STRUCTURES.

THE PALACE. (Plan and Sections on Plates III. and IV.)

The so-called Palace is in reality a group of buildings, probably temples, originally distinct one from the other, but all raised on a common foundation mound. This foundation mound, which may in itself be composite in character, is not in shape a rectangular parallelogram as figured by Waldeck and Stephens, but an irregular oblong, measuring roughly about 340 feet long by 260 feet wide. As the ground on which this foundation stands slopes down towards the north, the mound is higher at that end. The buildings on the top of this mound were raised again on secondary foundations and stand at different levels, and were in all probability built at different periods, but the later additions to the earlier buildings and the roofing over of passages between them has to some extent welded the whole mass together.

The sides of the foundation mound are so deeply covered with fallen stones and earth that there is difficulty in ascertaining their original shape and condition, but by careful examination certain features can be made out, although they are not sufficiently distinct for embodiment in the Plan on Plate III. The east slope is divided into three steps by surface walls with narrow terraces between them. On the northern half of this face the walls are parallel to one another, but towards the south the terraces between the walls become gradually narrower, and the whole face of the foundation

becomes more nearly perpendicular. The south-east corner of the foundation can be well seen in Plate XLVIII.

These walls and terraces can be made out with certainty along the whole length of this eastern face, but there is no trace of any stairway which could have given access to the buildings above.

On the north face of the mound the same breaking up of the surface into nearly perpendicular walls and terraces can be made out. The lowest or basement wall is well-preserved both at the east and west ends, and is formed of large slabs of well-cut stone, similar in arrangement to that of the wall on the east side of the Western Court, Plate XXVII.

Whether this form of basement wall was carried all along the north face, or whether it was interrupted in the middle by a flight of steps, it would be impossible now to determine without removing the large mass of fallen masonry due to the almost total destruction of the building which formerly stood on the northern edge of the mound. All that can be said is that a careful examination under the present conditions did not reveal any remains of such a stairway. Where the upper facing walls are still visible they are seen to retain fragments of elaborate stucco decoration, and portions of huge heads, both natural and grotesque, can still be made out; and it seems probable that the whole of the surface walls of the foundation mound were formerly decorated with similar ornament, which was almost as certainly brilliantly coloured. Here and there amongst the stucco ornaments are the remains of some gable-headed niches which may be the walled-up entrances to burial chambers. There can be little doubt that the base of the whole of the northern side of the foundation has given way. The detached mass may have moved bodily towards the north, thus giving the bowed appearance to the northern side of the basement, and causing the great rents which can be seen across the walls of the houses A and D, and the almost total destruction of the house or houses on the northern edge of the mound.

Along the west face of the foundation an arrangement of walls and terraces can here and there be made out, but there is no sign of a basement wall built of large slabs, nor is there any trace of a stairway. Towards the southern end of this face the walls are in better preservation, and are pierced by a few openings to admit light to the vaulted corridors which are enclosed within the foundation itself.

On the south side of the Palace the almost complete ruin of the buildings renders it now impossible to make out the plan of the foundation. It is, however, clear that it is different from that of the other sides, and that halfway up the slope there was a projecting terrace about 40 feet in width, which was probably reached by a stairway.

When we were living in the Palace we somehow became accustomed to regard the courts as primary divisions, and all visitors naturally entered the larger or Western Court first and examined all the chambers opening on to it, then passed through to the Eastern Court and continued the examination in like order; but in giving a detailed

description it is thought to be best to describe each building as a structural unit, although one may thereby fail in giving the general impression which is most strongly retained by the memory.

On our arrival at the ruins we found both the East and West Courts filled up almost to the level of the floors of the houses with broken masonry which had fallen from the surrounding buildings, and covered over by decaying trunks of trees and a luxuriant vegetation. We succeeded before leaving in digging out nearly the whole of this mass of debris and throwing it down the outside slope of the foundation mound.

HOUSE A. (Plates V. to XIV.)

This house stands on the northern half of the east side of the Palace Mound. It consists of two parallel corridors divided by a main wall which is pierced near the middle of its length by a large doorway. The upper part of this doorway is shaped somewhat like a Moorish arch (see sketch on Plate VI.), although of course it differs from it in structure.

Both of the outer walls of the building are pierced by large square-headed doorways, which at one time were furnished with wooden lintels; the wooden beams, however, have long since disappeared, and much of the stonework which they supported has fallen.

The original building ended at the third pier to the south of the middle doorway, but there is a prolongation beyond this of the main and western wall, and doubtless the remains of another house of later date with a somewhat lower roof (the end of which rested against the slope of the roof of House A) lie buried under the great heap of debris in that direction. It is also probable that the building originally ended to the northward at the third pier from the middle doorway, and that the extension to the north-east corner of the mound was a later addition. The same may be said of House D, and these two northerly prolongations of Houses A and D formed the east and west ends of a long building with a double corridor, now almost entirely destroyed, which probably extended right across the northern end of the mound.

The foundation of this northern side of the mound has apparently given way, causing the destruction of the northern building (see Plate XVII., *a*), and making a break (about 9 inches across at the base of the walls) right through the main walls of Houses A and D. In each case the outer roof of the building to the north of the break has fallen away, and the centre wall itself would probably have fallen but for the support of the heap of debris against which it rests.

The outer face of each of the piers of the eastern corridor of House A (Plates VII. to XI.) is decorated in raised stucco work, which was afterwards covered with a thin coat of plaster and then coloured. This coloured plaster has been renewed from time to time so that the original stucco is in some places covered with many layers of it. On the southern and probably also on the northern pier the design is an arrangement of glyphs, and on the four other piers are groups of human figures; in each case the design is enclosed in a border of symbols, and is surmounted by three glyphs. The northern pier has been overturned and is lying face downwards on the slope of débris below.

Above the lintels and piers there must originally have been laid a wall-plate of large well-wrought slabs of stone about eight inches in thickness, the outer edge of which formed a projecting cornice. As, however, the joints of this wall-plate were usually laid over the wooden lintels, the slabs have almost invariably broken and fallen away as soon as the beams beneath them decayed. Where portions of the wall-plate resting on the piers still remain in position, the projecting part has afforded protection to the face of the pier beneath it, and the plaster work has escaped serious damage. As has been already related, almost the whole surface of each pier was covered with layers of carbonate of lime varying from a thin hard skin to an incrustation some six inches in thickness, and where the crust was thick and could be removed without much difficulty, the colours beneath it retained some of their original brilliancy. The piers of the western gallery facing the court are without ornament. On both sides of the building above the cornice formed by the projecting wall-plate is a receding frieze which has been highly ornamented in stucco. Very few traces of the ornament are now left, but the stone supports on which it was moulded can be seen projecting from the surface of the masonry. Each doorway seems to have been surmounted by a different design, probably a large grotesque mask or face, such as can still be seen on some of the other buildings. Over each device traces of a row of glyphs are still visible. The four glyphs over the middle doorway of the western corridor are figured on Plate XII., *b*, *b*.

From the appearance of the débris it seems probable that some ornamental superstructure stood on the top of the roof over the main wall of the building, but no trace of it is now visible, and it was not considered advisable to dig in search of its foundations amongst the mass of root-bound stones which now form a compact covering to the roof.

In the eastern corridor, on the eastern face of the main wall, just below the spring of the roof, are thirteen stucco medallions, seven on the south and six on the north of the doorway. Each medallion is surrounded by a decorative border of snakes' heads and glyphs, and probably in the centre there was a human head. Unfortunately they are all very much damaged. (See photographs and drawing on Plate VI.)

The thickness of the roof above the main wall is perforated by six passages, in shape something like the upper part of the middle doorway. These passages have been

blocked up on the east side by a partition about three inches thick. On the opposite slope of the roof in each corridor are similar shaped recesses about three inches deep, each facing a recess on the main wall. There are some T-shaped and oblong holes pierced through the main wall, and these too have been subsequently blocked up on the eastern side.

On the west face of the main wall, on either side of the doorway, are three rectangular niches, each containing a vertical stone staple; these may have been used for fastening a door or curtain. Two horizontal rows of wooden roof-struts had formerly spanned the roof of each corridor.

A flight of steps made of large well-worked blocks of stone leads from the western corridor to the level of the eastern court. (See Plate XII.) This stairway is not, however, placed symmetrically opposite the central doorway. On either side of the steps, placed almost at the same angle as the steps themselves, are some large slabs of stone, on which are carved huge human figures and a few glyphs. (See Plates XII. and XIII.)

HOUSE B. (Plates XIV. to XIX.)

This house stands on the south side of the eastern court, on a platform of roughly squared stones, which has lost its facing of plaster, and is approached from the court by a range of steps of similar stones to which the plaster covering still adheres. There are three doorways on the north side, and the masonry piers bear traces of having been ornamented with human figures and glyphs moulded in stucco.

The south wall has two doorways.

The house is constructed as usual with two parallel corridors divided by a main wall which is pierced in the middle by a large gable-headed doorway. On either side of this doorway transverse walls have been subsequently built across the corridors dividing the house into five separate chambers, the middle chamber extending through the doorway to the south wall.

It will be noticed that the east wall is not square with the others. The north-west room had a doorway in its west wall which has subsequently been blocked up.

The two most interesting rooms are those facing the south. There are the remains of human figures moulded in plaster on the jambs of the doorway of the south-west room, and fragments of two large figures can still be traced amongst the broken plaster ornament on the back wall. From the doorway of this room a short flight of steps leads down to the floor of the 'Middle' court.

On the back wall of the south-east room (marked A on Plate XV.) is a well-preserved stucco ornament, surrounding the T-shaped hole (see Plate XVII., *δ*). Nearly the whole of the ornament had become covered with an incrustation of carbonate of lime, and where this could be removed the original colours with which the stucco had been painted were found to be fairly well preserved.

Plate XVIII. is a restoration made from a number of photographs and coloured sketches.

The only parts of this drawing for which the evidence is incomplete are the red scrolls issuing from the mouths of the serpent birds in the upper portion of the plate. The scrolls in the mouths of the birds in the lower part of the design are still quite well preserved.

All the wall-holes in the building are T-shaped. The lintels were all of wood, and wooden struts formerly spanned the vaults.

The angle of the roof of this house is of a lower pitch than usual, and probably on this account much of the northern side of the roof has fallen away.

A bridge thrown across the very narrow space between the roof of this house and that of House E is still in place.

HOUSE C. (Plates XIX. to XXIX.)

This house divides the eastern from the western court and stands upon a platform raised about eight feet above the level of the courts. In the middle of the eastern face of this foundation is a stairway 20 feet wide built of large well-squared stones, and flanked on each side by two large blocks of stone placed nearly at the same angle as the steps, each with a kneeling figure carved on it. Three of the upper steps have a hieroglyphic inscription cut on both the rise and tread of the steps. (See Plate XXIII.)

The perpendicular face of the foundation on either side of the stairway is divided into panels between kneeling figures, and each panel contains an inscription of four glyphs. (See Plate XXII.)

In the western court the face of the foundation of this building (Plates XXV. to XXVII.) is also encased in large well-cut slabs of stone, and is ornamented with an inscription. (See Plates XXVII. and XXIX.) The stairway leading down to the floor of the western court is at the south end of the western corridor.

The north end of the foundation of House C runs into that of the long northern house.

At the south end, the south-east corner abuts on House E, and the south-west face forms one side of the covered way running along the foundation of the tower, and nearly in the middle of this south face a flight of steps descends along the west wall of House E down to the level of the tower court. These steps are composed of small stones covered with smooth plaster still in good condition.

The plan of the house (see Plate XXI.) is like those already described; a double corridor divided by a main wall which is pierced by only one small square-topped doorway towards the south end.

There is no opening at the north end of the building; there is a door at the south end of each corridor, and the east and west sides have each five doorways divided by piers of masonry.

This building is one of the best preserved at Palenque. The walls are sound, and the size and inclination of the roof appear to afford more security than in Houses A and B. All the wooden lintels have disappeared but not much of the stonework above them has fallen.

The outer surface of each of the piers between the doorways has been decorated with designs in stucco, but on the piers facing the east court almost the whole of the plaster casing has fallen away, carrying the ornament with it, and only the scars and a few fragments of mouldings bearing traces of red colouring attest the former existence of elaborate ornament. Whilst digging away the débris which filled up the court, numerous fragments of faces, masks, and ornamental moulding were found, which must have fallen from these piers and the frieze above. (See Plate XLVII. *b* & *c*.)

On the piers at the south end of the house are some fragments of human figures, and on the eastern piers are the seated figures shown in Plate XXVIII. These had probably been preserved by the thick incrustation of carbonate of lime which covered them.

The wall-plate which projects to form the lower cornice has been built of very fine slabs of stone. Much of it is broken away, but at the S.E. and N.E. corners of the building we discovered some hieroglyphics cut on the under surface of the cornice, and were afterwards able to complete the inscription on the north-east corner on finding the broken portions of the slabs amongst the débris in the court. (See Plate XXIV.)

Where the edge of the wall-plate forming the lower cornice was still unbroken, concave holes could be seen at intervals cut in the under surface of the projecting portion, each with a stone staple or pin left in the middle, and holes had also been drilled through the outer edge, probably to support a curtain.

The frieze between the two cornices had been very richly ornamented, and the remains of seven large masks, or faces, can with difficulty be made out both on the east and west sides of the building, and on the east side some portions of human figures can also be detected.

corridors, and there is a smaller gable-headed opening like a window, through the northern part of the main wall. A square-topped doorway leads out of the southern end of the eastern corridor.

There were several secondary transverse walls with doorways through them in the western corridor which have now disappeared. In the eastern corridor there are four transverse walls, one of them extends to the top of the vault of the roof, the other three reach to the spring of the vault only; two of these latter are pierced by doorways, and the third (that to the north) separates the eastern corridor from the southern corridor of the northern house. The structure of these secondary walls is very rough and the plaster is coarse and brown in colour.

There are T-shaped holes both in the main and eastern walls, which open on to the eastern corridor only; some of these holes have moulded borders.

There are passages pierced through the thickness of the roof above the main wall similar to those in House A, and in a like manner they have been blocked up by a thin partition on the western side. There are also shallow recesses of the same shape facing these passages both on the east and west sides of the vault.

In the southernmost of these passages through the main wall a sort of stone ladder leads to a horizontal shaft; this shaft opens on the north side of the vault of the doorway which passes through the main wall. From the horizontal shaft rises a vertical shaft which apparently led to the roof but is now closed by a large stone.

A double row of wooden struts spanned the two corridors.

The house which prolongs the line of double corridors along the west side of the Palace Mound, to the south of House D, is a later addition and had a lower roof; only parts of the main and east walls now remain standing.

THE TOWER. (Plates XXVI., XXVII., and XXXVIII., XXXIX.)

The Tower stands at the south end of the western court and of House C. It is built in five superimposed compartments, namely: the solid foundation (No. 1, Plate XXXIX.), against which some small chambers or corridors have been built on the north and west sides, and perhaps also on the east side, which is now covered by a heap of fallen stones and rubbish; the first floor (No. 2); an intermediate floor (No. 3) with passages and minute cells; the second floor (No. 4); and the top floor (No. 5), of which the roof has fallen in.

On the first, second, and top floors there are wide openings or doorways through each of the four walls. These were formerly capped by wooden lintels which have

long since disappeared, but it is only on the east side that the destruction of the lintels has been followed by much damage to the stonework—on that side the masonry above each doorway has fallen away in ruins.

The four exterior walls really serve as a shell to enclose the central rectangular shaft of masonry which contains the stairway giving access to the different floors.

On the first and second floors there is a passage only 1 foot 6 inches wide between the central shaft and the outer walls of the Tower.

The intermediate floor consists of a narrow passage 2 feet wide and 4 feet high, extending along the east, north, and west sides in the thickness of the masonry, with a minute cell of the same width and height opening from it on the east and another on the north side. Neither cell has any exterior opening.

It seems probable that the top floor was the most important part of the building, as it apparently afforded the largest clear space. The openings in the sides of this chamber were so wide that the walls were reduced to four narrow piers at the corners. In the middle of the floor was what appears to have been a platform or table of masonry, which is now hardly visible under the débris from the roof. The steps of the stairway are very steep throughout the building.

There are projecting string courses running round the tower below and above each doorway, and above each string course the size of the tower is slightly diminished.

Nearly all the facing of stucco has fallen off the outside of the tower, but it still adheres to the jambs of the doorways and throughout the interior passages. The jambs of the doorways have been coloured dark red, and were ornamented with designs in black paint.

The four piers on the top floor were bordered with a pretty moulding in stucco on the outer face.

There are two small square holes pierced through the walls of the central shaft.

As the entrance to the stairway in the central shaft is on the west side, it seems probable that an exterior stairway which gave access to it must have passed over the roof of the group of small chambers which is clustered against the foundation on that side.

HOUSE E. (Plates XLI. to XLIV.)

This house stands almost in the centre of the Palace Mound and is in a very good state of preservation. There is no ornamental stucco moulding on the outer surface; the lower cornice is very heavy and has afforded good protection to the walls; the face of the unadorned frieze is almost perpendicular, and the outer surface of the roof, which is solidly built, is inclined at a slight angle, and covered with a thick layer of plaster still in a fairly good state of preservation. There are doorways both at the sides and ends of the house. The north end of the house is well shown in Plate XVI. as forming part of the south side of the eastern court, and the short flight of steps can be seen which lead up to the small doorway with a stone lintel at the end of the eastern corridor.

The house (see Plate XLI.) is similar in general plan to those already described. On the east side are two large and one small doorway. One of the larger doorways has been partly walled up, both had wooden lintels; the small doorway had a stone lintel.

There are three secondary transverse walls built across the eastern corridor. One of them extends through the doorway in the main wall almost across the western corridor. The third transverse wall, which may have had a doorway through it, cuts off a small portion of the southern end of the corridor, in which, close up against the southern wall, stands a stone table supported by four short legs. The doorway in the south wall has been blocked up. Near the middle of this corridor, a few feet to the north of the transverse wall, a small circular stone has been let into the floor, and the stone immediately above it in the vault has been pierced from the under surface, so as to leave a tenon round which a cord could have been passed.

Above the doorway at the northern end of this eastern corridor, and extending for a short distance along both walls just below the spring of the roof, is the stucco ornament figured in Plates XLII. and XLIII.

The doorway connecting the two corridors through the north part of the main wall has been blocked up.

There are four doorways in the west wall, one of them narrow and stone-capped, opposite the similar doorway in the east wall.

The doorway in the north end of the west corridor has been blocked up; it originally had a wooden lintel.

At the south end of the west corridor is an opening in the floor, from which descends a stairway leading into one of the three subterranean passages which communicate with the three corridors enclosed in the southern part of the Palace Mound. On the face of the vault of the stairway is a stucco ornament much ruined by the drip of water, somewhat similar in design to that figured on Plate XLVII., *a*.

The mouth of the stairway appears to have been at one time partly or entirely covered up by a layer of stone slabs.

The oval sculptured slab, figured on Plate XLIV., is let into the west face of the main wall facing the middle doorway in the west wall.

The stone table or altar which stood beneath it was removed by del Rio in 1786. The ornamental border of stucco which surrounds the oval slab has been almost entirely destroyed.

Above the slab, and extending along the wall just beneath the spring of the roof, a long double line of glyphs had been painted in black on the plaster. This inscription had subsequently been covered over by another layer of plaster which had fallen away in small patches. By carefully chipping away this top layer more of the glyphs were brought to light, and a photograph of a part of the inscription is given on Plate XLIII., *b*.

The walls of this house appear to have been ornamented both inside and out with painted signs and inscriptions, and some of this decoration can still be traced on the outside of the western wall.

All the wall-holes are T-shaped, and some of them had decorated borders moulded in stucco. There are holes showing where the wooden struts have spanned the vault.

On the west side of the house a few steps descend to the level of the Tower Court; perhaps similar steps on the east side led down to the level of the narrow Middle Court.

This building was probably one of the earliest erected on the Palace Mound, as the foundations of Houses B and D have been built up against its walls.

House F. (Plate XLI.)

This house differs from the usual plan only in having large gable-headed doorways through each end of the main wall. Nearly all the outer slope of the roof has fallen in. Above the main wall the roof is pierced by large transverse passages differing slightly in shape from those in Houses A and D; each of these passages is blocked up at one end.

There are several secondary transverse walls across the two corridors.

In the western corridor a covered niche or adoritorio has been built against the main wall: it contains nothing now, but may formerly have sheltered some movable figure. From the passage in the roof above this niche there is a vertical shaft which runs up through the roof of the house.

All the lintels were of wood, and the wall-holes with one exception are + -shaped.

The position of the wooden roof-struts is not given in the plan.

Outside the north end of the east wall of this building there is a small chamber with a doorway facing west, and in the interior of this chamber the stucco on the wall surface is moulded in a diamond pattern. The space between this chamber and house F is formed into a covered passage.

Against the north-west corner of House F stands a stone table resting on four legs. On the west side of the house a few steps lead down to the level of the floor of the Middle Court.

HOUSES G & H. (Plates XLV. and XLVI.)

These two buildings of equal size, with corridors running nearly east and west, stand on a raised foundation. The main features of the plan of each house are the same as in those houses already described; but the walls are somewhat lower than is usual, and the pitch of the roof is at an angle too wide to ensure stability, and in consequence the outer slopes of the roof have fallen in.

The south front of each building has four piers and three doorways, and there are two doorways in the north wall of each building.

The space between the ends of the two buildings is roofed over and divided by a wall into two passages running at right angles to the corridors of the houses themselves.

The roof above the main wall of each house is pierced by passages somewhat similar to those in House F. There are remains of several secondary transverse walls across the corridors.

At the south end of the Middle Court a small chamber or *adoritorio*, without any ornament, has been built up against the face of the raised foundation which supports House G. And a few feet further to the west, almost opposite to the southern door of House E, there is a small niche in the face of the foundation mound which may mark the entrance to a sepulchral chamber.

At the east end of the northern corridor of House H is a stone table. A transverse partition wall forms the west end of this corridor into a separate chamber, which has an opening in the floor, from which a flight of steps descends to a passage communicating with the Enclosed Corridors. It appears as though this opening in the floor had, at some former time, been purposely blocked up.

The lintels of the small doorways of Houses G and H are of stone, the others were of wood. All the wall-holes are T-shaped. The stucco covering of the masonry is of a grey colour, and it has not a polished surface.

Between the north face of the foundation of House H and the foundation of the ruined House I there is a narrow passage which has been roofed over and is divided

by several transverse walls. There is a small recess or niche in the west end of the foundation of House H which opens into this passage, and almost opposite this recess the passage has a short branch to the north which opens on to the Tower Court.

HOUSE I. (Plan on Plate III.)

This building is almost totally destroyed. It stood on a low platform, with steps descending to the Tower Court. It appears to have consisted of a single chamber with two doorways on the north side.

At the north-east corner there are traces of stucco decoration on the outer surface of the walls.

THE ENCLOSED CORRIDORS. (Plates XLV. and XLVI.)

The Enclosed Corridors are three in number, running parallel to one another nearly east and west, and their position with regard to the Palace Mound is clearly shown in the sections on Plates IV. and XLVI.

The eastern half of the southern corridor has three doorways opening on to the southern slope of the mound; the western half of this corridor has been purposely filled in with rubble. The floors of all three corridors are on the same level, about ten feet above the level of the ground on the south side of the Palace Mound.

The wall at the western end of the corridors has formed part of the western face of the Palace Mound, and **I**-shaped holes are pierced through it to admit light to the middle and northern corridors. All three corridors have been divided by secondary transverse walls.

The middle corridor contains two stone tables, one of them enclosed in a small chamber formed by the transverse walls. In the northern corridor is another table with a line of hieroglyphics on the sides of the stone slab and some ornamentation on the legs, all much worn. The wall-holes are all **T**-shaped, except those at the west end. Much of the roof at the east end has fallen in.

From the northern corridor three passages run northwards to stairways which rise, one through the floor of House E, another in House H, and the third in the ruined building to the south of House D. See plan on Plate III.

All three passages have vaulted roofs, and the face of the vaults where the steps descend are decorated with stucco ornament now almost destroyed.

A mould was made of the best preserved of these decorations (above the steps in the western passage), and a photograph of the cast is given in Plate XLVII., *a*.

All the doorways in the three corridors had wooden lintels.

An excavation of the mound of broken stones which lies above the roof of the west part of the northern Enclosed Corridor, and of the passage leading to it, revealed the remains of walls and of some chambers which have been purposely blocked up, and a curious arrangement of stone shelves at the end of one of the chambers (see Plate XLV.).

THE TEMPLE OF INSCRIPTIONS. (② on Plate I. and Plates XLIX. to LXII.)

To the south-west of the Palace a lofty foundation-mound has been raised against a steep spur of the hills, and supports the building known as the Temple of Inscriptions.

Stone-faced terrace-walls can here and there be seen amongst the débris with which the sides of the mound are strewn; but the stairway, which probably runs up the front of the mound, is completely hidden from view.

At the height of 60 feet there is a terrace, from which rises a second foundation 9 feet in height, which is ascended by a stairway 13 feet wide, flanked on either side by a leaning slab of stone, on which is the mutilated remains of a human figure carved in low relief (see plan on Plate LII.). The steps are nine in number, and are made of large and well-worked blocks of stone.

The building raised on these foundations faces the north; it is still in good condition and its walls are entire.

On the piers at each end of the face of the building are the remains of a hieroglyphic inscription arranged in eight columns. The piers between the doorways (Plates LIII. to LVI.) are ornamented with human figures, but unfortunately the whole of this stucco decoration has been very greatly damaged.

The plaster ornament on the frieze has been almost totally destroyed. Very little is left of the ornamented superstructure which rose from the middle line of the roof, but in all probability it was similar to that which can be seen on the other temples.

The main wall dividing the two corridors is pierced by three gable-headed doorways and the back corridor is divided into three chambers by two transverse partition-walls.

In the outer corridor, on each side of the middle doorway in the main wall, is a large panel made up of several slabs of stone let into the wall; each panel bears an inscription in low relief containing 240 glyphs. A similar panel let into the back wall of the middle inner chamber is made up of two slabs containing 140 glyphs. (See Plates LVII. to LXII.)

The square wall holes which are shown in the plan did not go right through to the outer surface of the walls. The position of the two small recesses with vertical stone staples in them on the inner side of the middle doorway in the main wall is also shown in the plan.

There are holes drilled through the under surface of the capstones of the roof, as though for the purpose of suspending lamps. On the outside of the building the edge of the projecting cornice was drilled with holes, those on the north side being larger than the others.

The floor in both the corridors has been paved with finely cut stone flags, which have been much damaged by excavations made in searching for treasure.

TEMPLE OF THE CROSS. (8) on Plate I. and Plates LXIII. to LXXXVII.)

This building stands on a very high foundation mound and faces the south.

About two-thirds of the distance up the slope, at the south-west angle of the foundation mound, are several sepulchral chambers which had already been opened. In one of these is a sort of stone coffin, the sides and ends formed of well-cut slabs. The contents had been rifled and only a few flakes of jadeite had been overlooked. The bottom and sides of the coffin were covered with a dark red powder.

None of the terrace walls of this foundation mound could be seen, on account of the mass of débris with which it was covered. Near the top of the slope, in front of the Temple (see Plate LXVI.), there lies on its side the carved monolith described by Stephens: a photograph of it is given on Plate LXVII., *c*, but it was too much weather-worn to be worth moulding.

The Temple (see plan and sections on Plate LXV.) consists of the usual two corridors with four piers and three doorways in the façade.

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The two eastern piers, the east end of the front corridor, and all the front of the roof, except a small portion of the south-west corner, have now fallen away, and almost all trace of ornament on the piers has disappeared. Stephens says:—"The two outer piers contain hieroglyphics, one of the inner piers is fallen, and the other is ornamented with a figure in bas relief but faded and ruined."

The frieze round the outside of the roof was very richly ornamented in stucco. The designs on the north and west sides were fairly well preserved and are shown in Plate LXVIII., *a* and *b*.

Upon the middle ridge of the roof stands a tall superstructure composed of two lattice-like walls enclosing a narrow space open at each end. This lattice-work was doubtless used as the foundation for stucco ornamentation, all trace of which has now disappeared. The space enclosed between these walls is divided halfway up by a stone floor. A line of stepping-stones projects from the inner sides of the walls forming a sort of stairway by which one can pass up through openings in this floor and through an opening in the capstones which lie over the top of the superstructure. From this elevated position a very fine view is obtained over the plain of Tobasco, and the village of Santo Domingo is just visible over the tree-tops to the east-north-east. The stucco covering the inner sides of the walls of the superstructure is still in good condition.

In the interior of the temple there are three gable-headed doorways through the main wall. The two side doorways are low and the one to the east has had a secondary wall built partly across it. The middle doorway is broad and high, the opening reaching almost to the same height as the top of the vaults of the corridors. The inner corridor is divided into three chambers by two transverse walls.

Inside the middle chamber, built up against the back wall of the Temple, is the sanctuary.

The outer walls of the sanctuary are surmounted by a frieze between two projecting cornices, all decorated with stucco ornament. (See Plate LXVIII., *c*, *d*, and *e*.)

The wooden lintel which supported the frieze above the broad doorway of the sanctuary has given way and disappeared, and much of the ornamentation of the frieze has fallen with it.

On each side of the doorway there was formerly a tablet of sculptured stone; these were removed from their places early in the present century and carried to the village of Santo Domingo, where they can now be seen embedded in the walls of the church*. (See Plates LXIX. to LXXII.)

* There is some confusion with regard to the sculptured slabs given on Plates LXIX. and LXX. Dupaix and Waldeck both ascribe them to the Temple of the Cross. Dupaix must have seen them in place, but before the date of Waldeck's visit they had been moved from their places and carried to a house in the village of Santo Domingo. Stephens, in describing the sanctuary of the Temple of the Cross, says "on each side of the doorway was a tablet of sculptured stone, which, however, has been removed"; but in giving the drawings

The inscribed panel let into the back wall of the Sanctuary is formed of three slabs of stone (see Plates LXXIII. to LXXVII.). The right-hand slab (*c*, Plate LXXIII.) is now in the National Museum at Washington, the centre slab (*b*) is in the Museum in the city of Mexico, and the left-hand slab (*a*) only is still in place.

In the western inner chamber is a block of masonry built against the back wall which may have been used as an altar.

There are several T-shaped holes in the walls, and on the north side of the inner corridor are several small holes pierced through the top of the roof as though intended for the escape of smoke.

There are stapled niches on the inner side of the large doorway through the main wall and on the inner side of the piers of the façade; each pier has also, high up on its outer face, a large niche holding two staples.

Two rows of wooden roof-struts had spanned the vaults of the roof.

It is probable that the sanctuary was formerly paved with stone flags, but it is now a yawning hole, the work of Antonio del Rio, or of some more recent treasure-hunter, and nearly every building in the place has suffered in the same way.

The two trefoil-shaped passages in the roof above the main wall are open to the outer corridor, but have been walled across on the other face.

At the northern base of the mound is a collection of smaller mounds, in one of which a few chambers can be seen.

On the east side the mound is joined by a terraced platform or causeway to the slope of the high hill which juts out from the range.

of the sculptured slabs now under consideration, he ascribes them to the Temple of the Sun, and, moreover, gives a restoration of the sanctuary of the Temple of the Sun with the sculptured slabs in place. I was at first inclined to accept Stephens's arrangement, the more willingly as the people of Santo Domingo still assert that these slabs now embedded in the walls of their church were taken from the Temple of the Sun. However, since my return home I have made careful measurements of the casts of the slabs and compared them with Mr. Price's plans of the temples, and it appears that these slabs are a few inches too large to fit into place on the face of the sanctuary of the Temple of the Sun, but would just fit into place on the Temple of the Cross. We therefore have, on one side, the authority of Stephens and Catherwood, who, however, did not visit Palenque until some years after the removal of the slabs, and the belief current at the present time amongst the inhabitants of Santo Domingo, none of whom had seen the slabs in their original position,—and on the other side, the fact that the slabs are, according to Mr. Price's plans, a few inches too large for the Temple of the Sun, the evidence of Dupaix, who saw the slabs in place, and that of Waldeck, who did not see them in place, but who not only ascribes them to the Temple of the Cross, but gives drawings of the shattered fragments of two other sculptured slabs which he ascribes to the Temple of the Sun. It seems to me that the balance of evidence is against Stephens's arrangement, and I have therefore included these slabs amongst the sculptures belonging to the Temple of the Cross. It is to be hoped that the next visitor to Palenque will carefully remeasure both the sanctuaries and the slabs, so as to remove all possible doubt as to their correct position.

TEMPLE OF THE FOLIATED CROSS.

(④ on Plate I. and Plates LXXVIII. to LXXXII.)

It is curious to note that neither Waldeck nor Stephens was aware of the existence of this Temple. It faces the west, and stands on a high terrace platform made either by raising an embankment against the base of the lofty hill which rises at the back of it, or by digging from the slope of the hill to make the terrace.

The plan and arrangement of the building are almost precisely similar to those of the Temple of the Cross. The whole of the front of the building has fallen away, and the mass of broken stone and plaster has blocked up any stairway or any other form of approach which gave access to the Temple.

An ornamented superstructure, similar to that on the top of the Temple of the Cross, has almost entirely disappeared, and the greater part of the decorated frieze has also been destroyed; but it is just possible to make out the remains of some huge grotesque heads on the east side, and some crossbar work can be seen on the north side.

Stone or stucco figures probably flanked the entrance to the Sanctuary (Plate LXXIX., *b*), but no trace of them now remains.

The cornices or string courses which enclose the frieze of the Sanctuary are ornamented with straight mouldings only.

The frieze over the doorway of the Sanctuary still shows portions of the outstretched wings of the serpent-bird, and at each end are the remains of a snake's head, with what is, perhaps, a human head between its jaws. A sketch of the ornament of the frieze on the sides of the Sanctuary is given in Plate LXXVIII., *d*.

The sculptured panel made up of three stone slabs let into the back wall of the Sanctuary is shown on Plate LXXX.; and drawings of the figures and the inscription from this panel are given on Plates LXXXI. and LXXXII.

On Plate LXXVIII. is the drawing (*e*) of a fragment of a sculptured slab found lying on the slopes to the west of a totally ruined building cut by the section line G to H on Plate I.

TEMPLE OF THE SUN. (⑤ on Plate I. and Plates LXXXIII. to LXXXIX.)

This building is similar in plan to that of the two Temples last described; but it is somewhat smaller and in a much better state of preservation. It stands on a foundation-mound and faces the east. The slopes of the mound are covered with débris, and no trace of retaining-walls or of a stairway can be seen.

On the two outer piers of the façade of the Temple there are traces of a hieroglyphic inscription with each group of glyphs arranged in a cartouche, and on the two inner piers are fragments of human figures.

The ornament of the frieze on the front of the building is very much damaged; but it is possible to make out part of the body and the head of a great serpent, with a grotesque head issuing from its jaws, and the remains of two human figures in a kneeling position. On the other three sides of the building the ornament of the frieze is almost entirely obliterated.

The lattice-wall of the superstructure is preserved entire; but very nearly all the plaster ornament with which it was formerly covered has fallen.

In the interior of the building the two passages pierced through the roof above the main wall are left open, and not blocked up on one side, as is the case in the Temple of the Cross. The inner gallery is divided as usual into three chambers; the southern transverse wall has a doorway through it covered by a stone lintel. In the northern chamber there are several stones projecting from the sides of the transverse wall, and on the back wall of this chamber there are scars which appear to indicate that a stone table was at one time fixed against it.

The doorway of the Sanctuary was flanked by two carved stone slabs (see note on pp. 28 and 29). Waldeck's drawings of these sculptures are reproduced on Plate LXXXVI.

As much as can still be made out of the decoration of the cornices and frieze on the sides of the Sanctuary is given in the sketches on Plate LXXXV. The frieze on the front of the Sanctuary has been destroyed; but from the portion of it figured both by Waldeck and Stephens there can be no doubt that the outstretched wings of the serpent-bird formed part of the design, and that the moulding of grotesque faces which is shown on the lower cornice in the side views was also continued along the front*.

A photograph of the sculptured panel let into the back wall of the Sanctuary is given on Plate LXXXVII., and drawings on Plates LXXXVIII. and LXXXIX.

* Catherwood's drawing (Stephens's 'Incidents of Travel,' vol. ii., facing p. 354) is incorrect in figuring a line of "symbols" on the lower cornice of the Sanctuary.

To the north of the foundation-mound of the Temple of the Sun is another rather smaller mound supporting a building of which the south-west corner alone remains standing. This mound is joined by a terrace to a smaller mound which enclosed the sepulchral chambers shown in Plate XC.

The entrance to these chambers was originally from the top of the mound by a flight of steps descending to the south-eastern chamber. This entrance has been purposely closed with a large stone slab, and access to the vaults is now gained by a hole broken through the masonry.

There is a descent of two steps from the outer to the inner or northern gallery, which is divided into three chambers. The doorways of the middle and western chambers have been walled across. In the east end wall of the southern gallery is a doorway now blocked up by fallen masonry and rubbish.

On the floor of the middle chamber is a coffin, made of thin slabs of stone, coated on the outside with stucco and smeared on the inside with red powder. The coffin had been rifled of its contents.

THE DEATH'S HEAD MONUMENT. (Plate XC.)

At a distance of about fifty feet from the Temple of the Foliated Cross, in a S.W. direction, there is a small mound, on the top of which was found the curious monument figured on Plate XC. This monument has been overturned, and was found more than half buried in earth and loose stones. It is in two pieces: one a sort of stone chair about 2 feet 3 inches high and 1 foot 10 inches broad, with an inscription on the front and sides; the other a nearly circular stone, carved on one side to represent a death's head. From the proximity of the two parts as they were found lying in the ground, and from the accuracy with which the death's head fits into the seat of the chair, it appears to be highly probable that the arrangement of the two parts as shown in the photograph on Plate XC. is correct. The two small pieces of wood, which in the photograph appear to be keeping the death's head in place, were used merely to prop up a part of the lower jaw which had been broken off.

HOUSE OF THE LION. ((6) on Plate I. and Plate XC.)

This small building stands on the steep side of the hill, about seventy-five feet above the stream, and faces the east. It is supported by a low foundation-mound, which rests on a narrow terrace cut out and levelled in the hill-side.

The whole of the front room of the building is in complete ruin. There is a doorway through the main wall, which has been covered by a wooden lintel, and was flanked on each side by a panel of stucco glyphs, of which the scars alone remain.

On the back wall of the building, facing the doorway, was a large plaque in stucco, figured by Waldeck, and part of it sketched by Catherwood. The design represented a man seated on a couch or chair, with a jaguar's or puma's head at each end, and with the animal's feet serving as the supports of the seat, somewhat in the style of the oval plaque in House E. (See Plate XLIV.) The figure of the man is now entirely broken away.

An opening in the floor at the south end of this inner room gives access to a very steep stairway, which descends to a lower chamber which is devoid of all ornament. At the south-east corner of this chamber is an entrance (which has at one time been blocked up) to another smaller chamber which is now unroofed and open to the air.

To the south and south-east of the House of the Lion, along the side of the stream and on the hill-slopes, there is a collection of low mounds, containing a great number of small chambers; two or three of these chambers contain stone tables, and some appear to have passages leading out of them to inner rooms which have been subsequently blocked up. All the chambers were probably used as places of sepulchre.

At the eastern end of the section-line M-N (Plates I. and II.) there is a building of which only the north wall and part of the main wall remain standing. It appears to have been built on the usual plan, with three openings through the main wall. The remains of the chambers are choked with fallen masonry. No ornamentation could be seen.

To the south of this building, raised on a higher terrace, is the remains of another building, which is in such a complete state of ruin that no plan of it could be made without removing a great amount of fallen masonry. On the south side of it is a flat-topped mound, on which no trace of a building could be found.

At the south-east corner of the plan (Plate I.) the ground rises in a series of slopes and terraces, surmounted by a long low mound which appeared to contain several small chambers.

At the foot of the terraces, on the southern side of a small plaza, is a large building (cut across by the section-line F-Q) which has the appearance of having been built in a solid mass; but in its present ruined condition it is impossible to say whether this is the case, or whether the building formerly contained chambers which have been compactly filled in by the falling of the roof. The front and side walls are almost completely destroyed, and no remains of doorways could be traced in them. The

south wall is in a fair condition, there are no doorways in it, and although it rises to a considerable height, there is no trace of wall-plates or of the commencement of a roof.

THE SOUTHERN TEMPLE.

The lofty mound (cut by section-line E-L) which supported this Temple can be seen to the right of the Temple of the Sun on Plate LXIV. The building on its summit is completely ruined, with the exception of the west wall, and as this wall has no openings in it, it seems probable that the building faced towards the east. The blocks of sandstone, which were employed only in the construction of this building and one of the northern Temples, are much weathered along their edges, and the material appears to have been too soft to stand the moisture of the climate.

The building (cut by section-line E-L) standing on the level plaza to the north of the Southern Temple is much ruined. The remains of the northern wall are covered with a mass of fallen masonry. The side walls and the southern wall are in good condition, and the latter is pierced by two wide doorways; but the interior is filled up with solid-looking masonry and rubble, and it is difficult now to make out whether this is the remains of the fallen roof and superstructure, or whether the chambers have been purposely blocked up.

To the west of the building last described is a long mound (cut by section-line M-N) rising above the east bank of the stream, which contains in its north end several small chambers and walled-up passages.

To the west of the Temple of Inscriptions on the western edge of the plan are the remains of a building approached by a broad stairway. The eastern half of the roof is still intact, but the rest has fallen. There are traces of stucco decoration on the piers.

To the south-west of this building, beyond the limit of the plan, is a small mound containing several enclosed chambers.

Along the base of the hill further to the westward is another group of mounds, many of them honeycombed with small chambers and passages, and at the end of this group, distant nearly half a mile from the Palace, is a mound of considerable elevation with somewhat clearly-defined terrace walls. On the summit is a small building facing north, divided by a main wall into two galleries. The two outer piers of the façade show the remains of a hieroglyphic inscription within an interwoven scroll border, and on the two inner piers can be seen the traces of human figures moulded in stucco. The walls of this building are 3 feet 6 inches in thickness, and

the galleries are only 4 feet 6 inches in width. There are three doorways through the main wall. The east wall and part of the roof has fallen. The exterior of the roof has been ornamented with a decorative frieze moulded in stucco, and on the summit there are traces of stone lattice-work which has supported stucco decoration as in the more important Temples.

The mound marked A (section-lines) on the west side of the Palace is one of the highest mounds shown on the Plan.

No trace of a building could be found on its summit.

THE NORTHERN TEMPLES.

This group is composed of six Temples. One Temple, standing on a detached mound (cut by the section-line T-C), faces the east; the other five Temples all face the south, and are ranged in a line on the summit of one long foundation-mound which borders the northern limit of the plateau.

The detached Temple has been built on the usual plan, the principal variation being a deep niche in the back wall opposite the middle doorway. There are traces of a hieroglyphic inscription in stucco on the piers, and of a decorative frieze on the exterior of the roof. The doorways in the main wall are square-topped, and must have had wooden lintels.

The westernmost of the five Temples on the long foundation-mound was built of sandstone, like the Southern Temple described on page 34, and is almost completely ruined. There were apparently five doorways through the outer and three through the main wall.

The next Temple towards the east stands at a slightly higher elevation. There are traces of large stucco figures on the piers, and also of stucco ornamentation on the exterior of the roof. There is a stone with the remains of a hieroglyphic inscription on the inner face of the main wall. This carving is partly hidden by a transverse partition-wall which has been built up against it.

The third building in the row contains one single small chamber. There are traces of stucco figures on either side of the doorway.

The fourth Temple is in a somewhat better state of preservation than the others. The piers and outside of the roof show traces of stucco decoration. This is almost the only Temple at Palenque of which the floor has been left untouched by excavators. The plaster coating of the floor is in almost perfect condition and retains its polished surface. On the back wall there are traces of colouring.

The fifth building, like the third, contains a single chamber; only a small part of one wall is left standing.

The other mounds shown in the Plan were not sufficiently explored to necessitate a detailed description. If any of them have formerly supported buildings, they are so far ruined that a ground-plan could be traced only after removing a large quantity of débris.

On the N.E. corner of the Plan is a bridge spanning the stream (*a*, Plate XCI.). The water passes through a small tunnel with a vaulted stone roof of the usual construction.

POTTERY. (Plate XCI., *b*.)

Three pots taken from tombs are shown in this photograph. The small pottery figure on the left was found inside the pot next to it, associated with some fragments of bone.

PLATES XCII. and XCIII.

On Plate XCII. is given the Initial Series or Date from five Inscriptions at Palenque, in the same way as those found at Copan were given on Plate XXXI. (Vol. I.). In the Copan series only the first six glyphs were figured, as the value of the month sign was not then fully appreciated. In Plate XCII. the month glyph is in each case added.

According to Mr. Goodman's Tables the dates would read as follows:—

	Temple of the Foliated Cross.	Temple of the Sun.	Temple of the Cross.	Inscribed Steps.	Temple of Inscriptions.
Great Cycle	54	54	53	55	54
Cycle.....	1	1	12	3	9
Katun	18	18	19	18	4
Ahau	5	5	13	12	20 or 0
Chuen	4	3	4	15	18 or 0
Day	20 or 0	6	20 or 0	12	20 or 0
Named Day.....	1 Ahau	13 Cimi	8 Ahau	8 Eb	13 Ahau
Named Month.....	13 Mac	19 Ceh	18 Tzec	15 Pop	18 Yax

THE TWO-HEADED DRAGON.

(Plate XCII. figs. *a, b, c*; Plate XCIII. figs. *a, c, d, e, i, j, n*.)

Three drawings on Plate XCII. and all those on Plate XCIII. are given in order to call attention to two decorative motifs, the "Two-headed Dragon" and the "Water-Plant," which appear to have been employed throughout the Maya area. Mention has already been made of the "Two-headed Dragon" on pages 51 & 52, Vol. I., where the particular marks attached to the short-nosed head were figured.

These figures are here repeated for convenience of reference:—



On Plate XCIII., figs. *a* & *e* from Copan and fig. *d* from Palenque show both heads of the dragon. Figs. *a, b, c* on Plate XCII., and figs. *c, i, j, n* on Plate XCIII., show the use of the "short-nosed head" as a detached ornament, as in Plate XCII. fig. *b*, where it forms the base of the central design of the Temple of the Cross; but it more often occurs as part of a head-dress, as in fig. *c*, Plate XCII., and figs. *c* & *j**, Plate XCIII.

THE WATER-PLANT. (Plate XCIII. figs. *b, f, g, h, l, m, o, p*.)

The "Water-Plant" appears to be the only vegetable form employed in Maya decoration. The stem of the plant usually springs from a grotesque mask or face. In fig. *m*, Plate XCIII., the leaves and flower-buds are very clearly drawn, and have somewhat the appearance of those of a water-lily, but my reason for calling it a water-plant is that in many of the examples a fish is to be seen apparently feeding on the flower or on something connected with the flower.

* See also Vol. I. Plate XCIX. fig. *f*, and page 64, where another part of the same head-dress is explained.

In fig. *o* not only is there a fish attached to each flower, but an aquatic bird and a turtle complete the design.

Fig. *g* is copied from the painted ornament on a piece of pottery dug up by Mr. J. Dieseldorf at Chajcar, in the Alta Vera Paz.

Fig. *l* shows some pottery fishes also dug up by Mr. Dieseldorf in the same neighbourhood. The knob attached to the mouth of each fish, which was at first difficult to understand, is evidently the flower of the water-plant broken off from its stem.

Fig. *f* is part of an "Initial series" in picture-writing from Stela D at Quirigua. The inscription on this stela is one of those which has presented the greatest difficulty in transcription. Nine or ten years have passed since the first drawing was made of it by Mr. Lambert from a plaster-cast. It has been re-drawn by Miss Hunter, and examined and corrected many times; and I have taken these drawings to Quirigua and compared them with the inscription itself, but we are not yet quite satisfied with the accuracy of the transcript. However, a great step in advance was made by the discovery of the "Serpent-bird" which appears in this series; but it is only quite recently that, in what I had taken to be some scroll-work (in the right-hand upper corner of fig. *f*), I detected the form of a fish whose presence is justified by the water-plant which forms part of the design.

Fig. *b*. The presence of the fish in the decoration of Stela N, Copan (Vol. I., Plates LXXIX. & LXXXII.), becomes now more intelligible. The stem of the water-plant is apparently bound round and knotted in front of a grotesque mask, and the fish is shown attached to the flower of the plant.

Other examples of the use of the water-plant in ornament can be seen in Vol. I., Plate XCV., where the great alligator which spreads over the top of Altar T (Copan) is seen to be adorned with bracelets and anklets of the water-plant with fish attached to the flowers; and in Plate LXVIII. of this volume, where the fish and water-plant are used in the decoration of the frieze on the exterior of the Temple of the Cross.

Fig. *k* is added to this Plate to show the form of a fish when it occurs as part of a glyph in a hieroglyphic inscription.



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